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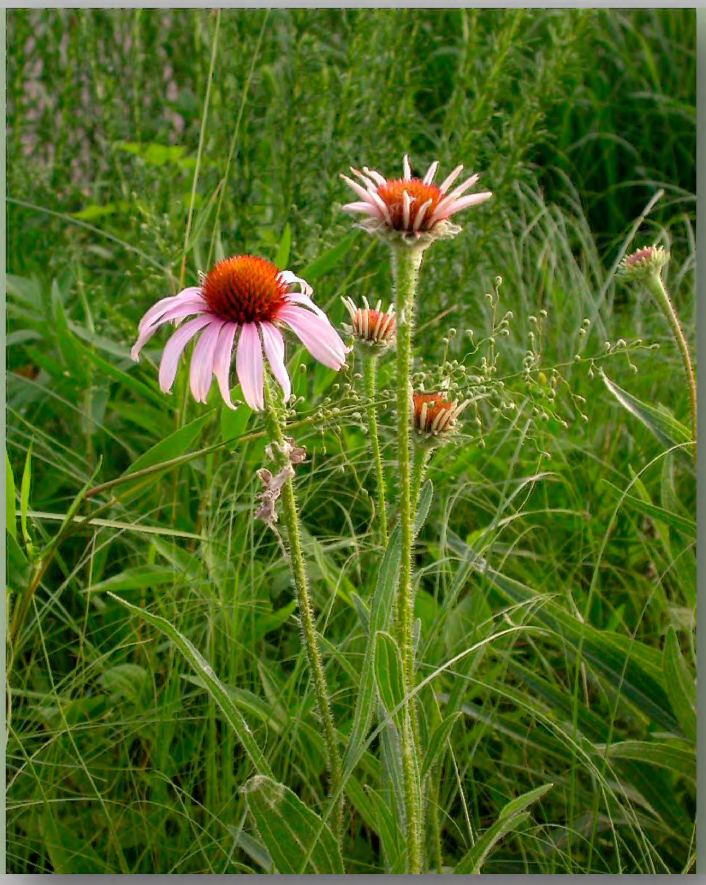

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COVER PHOTO: *Echinacea angustifolia* (article on p. 1) with *Dichanthelium scribnerianum* (article on p. 7) in background. Photo by Peter M. Dziuk, courtesy of Minnesota Wildflowers www.MinnesotaWildflowers.info.

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Rediscovery of *Echinacea angustifolia* and *Cirsium undulatum* in the loess hills of Missouri, with confirmation of *Solidago jejunifolia*

STEVEN BUBACK[1]

ABSTRACT. — New populations of three species — *Echinacea angustifolia*, *Cirsium undulatum*, and *Solidago jejunifolia* — are documented from xeric loess hill prairies in Missouri. *E. angustifolia* and *C. undulatum* were previously known only from historic records, while an extant population of *S. jejunifolia* is verified at the same location as a 2003 collection.

INTRODUCTION

The loess hills of Missouri and Iowa are a unique landform consisting of deep deposits of wind-blown soil (loess). These deposits, which are believed to have originated from the ancient Missouri River that drained pre-Illinoisian glaciation events (Rovey and McLouth 2015), reach over 100 feet deep in many places, and are composed of angular sand, calcium, and loess. In Missouri, loess hill prairies are considered a dry expression of glaciated tallgrass prairie (Nelson 2010) and occur in a narrow band of hills directly overlooking the Missouri River to the west.

Although deep loess deposits can be found along the Missouri River as far south as Van Meter State Park in Saline County, loess hill prairies have been documented only from St. Joseph northward (Bush 1895), and are today best expressed only in Atchison and Holt counties. There are currently only 173 acres of loess hill prairie left in Missouri (Missouri Natural Heritage Program, personal communication, 2021) and many of these remnants are threatened by woody intrusion and soil mining. Because larger particles of loess were deposited closer to the water source, the hills closest to the ancient Missouri River channel offer the most distinctive soil characteristics (Mutel 1989). These hills are excessively drained and feature unique plant and animal communities that are most similar to a mixed-grass prairie although loess hill prairie is often considered a xeric expression of tallgrass prairie. Today, these prairies are maintained through the use of prescribed fire, mechanical, and chemical means. Historically, regular fire and periodic drought were thought to the primary drivers of species composition.

Twenty-one of the plant species of conservation concern tracked by the Missouri Department of Conservation (2021) occur in the loess hills; all of these typically have their main ranges west of Missouri. Characteristic species of loess hill prairies in Missouri which should be considered associates of the species discussed here include *Astragalus lotiflorus*, *Bouteloua hirsuta, Castilleja sessiliflora*, *Dalea enneandra*, *Liatris punctata* var. *punctata*, *Lygodesmia juncea*, *Muhlenbergia cuspidata*, *Oxytropis lambertii* var. *lambertii*, *Schizachyrium scoparium,* and *Yucca glauca* (Yatskievych 1999, 2006, 2013).

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Over the past ten years, two species have reappeared as a constituent of the Missouri loess hills flora after a long hiatus: *Echinacea angustifolia* and *Cirsium undulatum*. A third species, *Solidago jejunifolia*, was recently described and reported in Missouri from herbarium specimens. Field work has confirmed the persistence of this species in the loess hills of Missouri.

1. *Echinacea angustifolia* DC.

Echinacea angustifolia, narrow-leaved purple coneflower (**Figure 1**), is primarily a Great Plains species, distributed from Manitoba and Saskatchewan (Urbatch et al. 2006), south to northeastern New Mexico and Texas. Range-wide, the species is ranked as G4 (Apparently Secure), but is considered critically endangered (S1) in Iowa (NatureServe 2021). It is most similar to *E. pallida*, but is separated by its short (<4 cm), spreading rays and yellow pollen (Yatskievych 2006, GPFA 1986; see also **Figure 1**). It is considered a characteristic member of the Great Plains flora with the majority of occurrences found on dry, rocky prairies (GPFA 1986).

The documentation of this species in Missouri has been sporadic. It was first discovered in 1961, in a private remnant prairie near Taberville Prairie Conservation Area in St. Clair County (Tropicos 2021: MO-2109569). In 1963, Victor Muehlenbach collected a waif (Tropicos 2021: MO-2109566) in the Baden Freight Yards in St. Louis; this area was a fertile site for many exotic species prior to widespread use of herbicides (Muehlenbach 1979). In 1965 a specimen was collected from a roadside north of Cape Girardeau in Cape Girardeau County (Missouri Natural Heritage Program, personal communication, 2021). Overall, this species has been frequently reported but seldom verified within the state, and Yatskievych (2006) considered the species introduced in Missouri. For a full history of *E. pallida* and related species in Missouri see Yatskievych (2006).

Figure 1: *Echinacea angustifolia* inflorescence, showing spreading ray florets and yellow pollen, with *Agopostemon* visitation. Star School Prairie Conservation Area. Photo by the author, 17 June 2016.

Echinacea angustifolia was first located in a native habitat in Missouri in 2014, when several flowering specimens were noted adjacent to a historic roadcut through a loess hill prairie at Star School Hill Prairie Conservation Area in Atchison County. Several botanists verified this occurrence in the following few years, including George Yatskievych and an independent discovery by Justin Thomas (Ladd and Thomas 2015). A voucher specimen was collected by the author in 2016 (*Buback 16-006*, *hb buback*). The species has since been noted on steep side slopes in remnant loess hill prairie at Star School Hill Prairie Conservation Area and on a separate property 1.5 km to the south, where it was discovered in 2020. These loess hill prairies are well botanized, so it is surprising that such a conspicuous species would have gone undetected until now. *Echinacea pallida* is generally not present in loess hill prairies, and pollen color and morphology clearly separate the two species. The yellow pollen and spreading rays of *E. angustifolia* are apparent in **Figure 1**, whereas E. pallida has white pollen and drooping rays.

One possible explanation for the occurrence of *E. angustifolia* at the site is propagule transport from extant populations in Iowa or Nebraska, which is further supported by the appearance of individuals on the south tract of Star School Hill Prairie Conservation Area in 2020. There were no known equipment movements or other vectors during this time to suggest that the migration is human-facilitated. Additionally, Bush (1895) did not mention this species in the loess hills, lending credence to the idea of a more recent establishment. No site contains more than 10 individuals, and populations should continue to be monitored and protected.

2. *Cirsium undulatum* (Nutt.) Spreng.

Cirsium undulatum, wavyleaf thistle, is a widespread species that occurs throughout the western and northern United States and adjacent western Canada (Kiel 2006). This perennial thistle has both leaf surfaces covered with a wooly pubescence (**Figure 2**). The species is secure (G5) from a rangewide perspective, although both Missouri and Iowa consider the species Critically Imperiled (S1) from a state perspective (NatureServe 2021). Throughout most of its range it is considered common, occupying habitats including dry prairies, roadsides, and open disturbed areas (GPFA 1986).

The first collector of *Cirsium undulatum* in Missouri was Benjamin Franklin Bush, who reported it as uncommon near Sheffield, Jackson County in 1894 (Bush 1895). Populations have subsequently been documented along railroad tracks in Jackson and Wayne counties and in St. Louis City, but these populations have not been relocated. These populations could have been adventive from propagules transported by the railroad or remnants of native populations. Art Christ collected a specimen at an unknown locale 3 miles south of Watson, in Atchison County, in 1932 (TROPICOS 3507456). This location is currently part of an entire section of tilled agricultural land, but in 1932 could have been bottomland prairie. Aerial photography from October 1950 shows the area to be a mix of row crop and what could be native pasture or hay prairie. Tom Toney relocated a specimen in Atchison County in 1978 but provided no detailed location information (TROPICOS 3257799). In fall of 2011, short individuals of this species were found in Atchison County along a roadside that had been sprayed with herbicide. These plants consisted of rosettes with the characteristic upper and lower leaf pubescence of the species, but herbicide use prevented flowering.

Further searching led to the discovery of basal rosettes of the species on the loess hill prairie at the north end of Brickyard Hill Conservation Area in Atchison County, where a single individual bloomed in the fall of 2011. Here the basal rosettes all appeared to be infested with *Trichosirocalus horridus*, a weevil introduced for the biological control of musk thistle (*Carduus nutans*). Over the last ten years, the population has persisted on the loess hill prairies but generally only 10% of the rosettes bloom in any given year. As a drought-tolerant perennial, the species may be able to persist without flowering for some time due to its "deeply seated runner roots that produce adventitious buds" (Keil 2006). Bush (1895) noted that this species was found about halfway up the sides of several loess mounds, as are the current plants.

In the field, individuals of *Cirsium undulatum* were very distinct from other native and exotic thistles, with dense pubescence on abaxial and adaxial surfaces. Plants were most noticeable as basal rosettes, which were widely separated (~1 m) from each other, and only flowering sporadically. Flowering plants were typically short (<0.5 m), blooming from May to August over the last 10 years. Counts of rosettes peaked at 26 in 2020, so the population is still precarious. Typical management has allowed the species to persist at the site, but additional monitoring is needed to ensure this species remains a part of the Missouri flora.

Figure 2. *Cirsium undulatum*. **A.** Inflorescence; **B.** Leaves and stem. Brickyard Hill Conservation Area. Photos by the author, 30 July 2017.

3. *Solidago jejunifolia* E.S. Steele

Solidago jejunifolia, sometimes called long-petioled showy goldenrod, is a recently resurrected species in the section *Squarrosae* (Semple et al. 2017). *Solidago jejunifolia* is most similar to *S. speciosa*, from which it differs in having long, thin petioles, especially on basal leaves

(Semple et al. 2017). In their Flora of North America treatment for the genus, Semple and Cook (2006) treated the species as a synonym of *S. speciosa* var. *speciosa*). Yatskievych (2006) notes that the taxon is not known from Missouri. It was first documented from the state in 2017 when Semple redetermined a specimen collected by the late Jack Harris in Atchison County from Star School Hill Prairie Conservation Area in 2003 (Semple 2017), but no further specimens from Missouri were identified. Occurrences have also been documented (Semple 2017, Semple et al. 2017) in Nemaha County, Nebraska, directly across the Missouri River from Atchison County, and in eastern Iowa from Muscatine County, so additional populations could be anticipated in northern Missouri. The bulk of the populations of *S. jejunifolia* are documented from western Wisconsin and central Minnesota on sandy sites (Semple et al. 2017).

During an October 2019 visit to the loess hills with Aaron Floden and Meg Englehardt, Aaron brought the newly described species to my attention. We located the species on the crest of hills at Star School Hill Prairie Conservation Area in Atchison County, and I subsequently found specimens on loess hill prairies at Brickyard Hill Conservation Area in Atchison County. We were unable to locate any *S. speciosa* sensu stricto at these sites, so it is possible that previous reports of *S. speciosa* from the area include or consist of *S. jejunifolia*. I have not located *S. jejunifolia* outside of these two loess hills prairies, so it is possible that the species could be considered a loess hill specialist in Missouri.

In the loess hills, the species is relatively common and populations on most publicly-owned loess hill prairies likely number in the dozens, although no population estimations were made. The Missouri populations occur on substantially different substrates than populations elsewhere in the range, and it is recommended that future searches should focus on sandy areas along the Mississippi River in northeastern Missouri. Interested parties should also note the presence of *S. rigidiuscula* in Missouri, where it is purported to inhabit drier areas than typical *S. speciosa*. A modified key to the *S. speciosa* complex from Semple (2017) is presented below. Note that late-season flowering or fruiting material is required for accurate identification.

KEY TO THE *SOLIDAGO SPECIOSA* COMPLEX IN MISSOURI

1 Petioles of basal rosette and lower stem leaves often comprising half or more of total leaf length; lower stem leaves present at flowering; ovaries and achenes with sparse pubescence; currently known only from loess hill prairies in northwest Missouri..... ***Solidago jejunifolia***
1 Petioles of basal rosette and lower stem leaves comprising less than one-third of total leaf length; ovaries and achenes glabrous to sparsely pubescent; habitat and distribution various.
  2 Lower stem leaves absent at flowering; middle and upper stem leaves relatively numerous and overlapping; ovaries and achenes sparsely pubescent .....***Solidago rigidiuscula***
  2 Lower stem leaves usually present at flowering; middle and upper stem leaves less numerous and not overlapping; ovaries and achenes glabrous..... ***Solidago speciosa***

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George Yatskievych and Justin Thomas were instrumental in specimen verification. Aaron Floden brought the existence of *Solidago jejunifolia* to my attention, and several anonymous reviewers provided comments and edits that substantially improved the quality of this report. Doug Ladd was patient with my foray into this publication. I am indebted to all of them.

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New Combination: *Dichanthelium scribnerianum*

JUSTIN R. THOMAS[1]

The combination "*Dichanthelium scribnerianum* (Nash) Gould" has been used in a few references recently (e.g. Mohlenbrock 2014; Wilhelm and Rericha 2017) and ascribed to Gould (1974). However, Gould (1974) did not make or imply such a combination, but did make the new combination *D. oligosanthes* var. *scribnerianum* in the process of elevating the genus *Dichanthelium* from *Panicum*. More specifically, Gould (1974) intended to make Fernald's (1934) *Panicum oligosanthes* var. *scribnerianum* into *Dichanthelium oligosanthes* var. *scribnerianum*. Because the combination has not been made within *Dichanthelium* at the species level, I publish it here.

***Dichanthelium scribnerianum* (Nash) J.R. Thomas comb. nov.**

BASIONYM: *Panicum scribnerianum* Nash, Bull. Torrey Bot. Club 22(10): 421. 1895. Based on *Panicum scoparium* S. Watson, Gray, Man. Ed. 6: 632. 1890 non Lamarck (1798).

SYNONYMS: *Panicum macrocarpon* Torr. Fl. N. Middle United States 143. 1823 non Leconte (1819). *Panicum scoparium* var. *minor* Scribn, Grasses Tennessee pt. 2, 48 (1894). *Panicum oligosanthes* var. *scribnerianum* (Nash) Fernald, Rhodora 36(423): 80. 1934. *Dichanthelium oligosanthes* var. *scribnerianum* (Nash) Gould, Brittonia 26(1): 60. 1974. *Dichanthelium oligosanthes* subsp. *scribnerianum* (Nash) Freckmann & Lelong, Sida 20(1): 170 (2002).

TYPE: **USA**. **Pennsylvania**. Bradford Co., Wysox: *J. Carey s.n.* (lectotype: GH).

Lectotypification was done by Hitchcock and Chase (1910) via a convoluted but accurate route, which they detail well. The lectotype was originally called *P. pauciflorum*, as was another specimen by a different collection from Georgia which is the type for *D. oligosanthes* (Hitchcock and Chase 1910). Gould and Clark (1978) inaccurately cited the holotype as the type specimen of *Panicum macrocarpon* Torr. (not Leconte). While this is the holotype for that name and that name is a synonym for *D. scribnerianum*, it is not the type for *D. scribnerianum*.

Contemporary interpretations of this taxon such as in the floristic works of Mohlenbrock (2014) and Wilhelm and Rericha (2017), as well as my own personal experience and research within the genus, support recognizing this entity as a distinct species. It differs markedly and consistently from *D. oligosanthes* in terms of morphology and habitat. *Dichanthelium scribnerianum* is less rhizomatous, has wider leaves that are more oblong in shape with more truncate bases, and its upper leaves have an ascending curvature compared to the straight and narrower leaves of *D. oligosanthes*. There is also a strong tendency for the autumnal form of *D. scribnerianum* to consist of one or two fascicles of leaves close together along the stem and for *D. oligosanthes* to have three well-spaced fascicles of leaves. More diagnostic characters are included in the key below, which also includes distinguishing characters for the closely related *D. helleri*.

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Dichanthelium scribnerianum typically occurs in dry open fields and degraded portions of dry grassland and woodland systems, whereas *D. oligosanthes* typically occurs in mesic woodland and forest communities of variable ecological complexity and stability. In terms of geographical range, in North America *D. oligosanthes* is mostly restricted to the southeastern Gulf Coast Plain but for disjunct populations around the Great Lakes region. *Dichanthelium scribnerianum* occurs commonly across the middle of the United States, and less commonly into northeastern North America, with occurrences into the southwest and northwest. Accurate distribution maps that represent the contemporary interpretations of *Dichanthelium* in general are lacking.

KEY TO THE *DICHANTHELIUM OLIGOSANTHES* GROUP IN MISSOURI

1 Largest vernal stem leaves 5 - 8 mm wide and 6 - 14 cm long, usually more than 10 times longer than wide; spikelets typically 3.5 - 4.0 mm long; spikelets more broadly elliptic to subtly obovate with obtuse tips; plants generally taller with more divergent vernal stem leaves (especially in autumnal stage); autumnal stage with two to three distinct fascicles of leaves; plants tend to grow in small colonies of several stems in shaded to partially shaded woodlands and forests…….. …… ***Dichanthelium oligosanthes***

1 Largest vernal stem leaves 6 - 12 mm wide and 5 - 10cm long, less than 10 times longer than wide; spikelets 2.9 - 3.5 (-4.0) mm long; spikelets strongly obovate with rounded, blunt tips; plants shorter with more ascending vernal stem leaves; autumnal stage with one or two distinct fascicles of leaves; plants tend to grow in small clumps with few stems radiating from a common basal tuft in various types of open habitats.

2 Spikelets around 3.5 mm long (occasionally longer); vernal stem leaves typically truncate to rounded at the base with nearly parallel margins to an abrupt tip; distal vernal stem leaves hammock-shaped (with a slight upward curvature) when fresh; upper vernal sheaths often hispid…….. …… ***Dichanthelium scribnerianum***

2 Spikelets around 3.1 mm long; vernal stem leaves slightly tapering at the base with subtly diverging margins and a more drawn tip; distal vernal stem leaves flat when fresh; upper vernal sheaths often glabrous to glabrate…… ***Dichanthelium helleri***

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Caleb Morse, Collection Manager at the R.L. McGregor Herbarium at the University of Kansas, after my having annotated all their *D. scribnerianum*, discovered that the name was not valid. My thanks to him for pointing it out. Tremendous thanks also to Anton Reznicek at the University of Michigan for clarifying the convoluted nomenclatural history of this taxon.

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Archidium ohioense confirmed in Missouri

JOHN J. ATWOOD[1]

ABSTRACT. — *Archidium ohioense* is confirmed for Missouri based on a specimen from the Gans Creek Wild Area in Rock Bridge Memorial State Park, Boone County. An earlier report of this species from the state is *A. alternifolium*. There are now 326 moss taxa verified from Missouri.

Archidium Brid. (Archidiaceae) is a genus of 36 accepted species (Tropicos 2021), seven of which occur in North America (Spence 2007; Toren et al. 2016). The diminutive plants (1–20 mm high) grow in dense, yellow-green turfs on soil in disturbed habitats, and are often partially buried or otherwise obscured by vegetation, including other bryophytes. Its plants are nondescript and have mostly erect, ovate to lanceolate leaves with acute to acuminate apices. The lateral or terminal capsules are sessile, ovoid, cleistocarpous (i.e. lack an annulus and operculum) and contain few, but massive spores. These spores, up to 310 µm long, are the largest of any bryophyte (Snider 1975); this character immediately separates *Archidium* from all other genera.

Archidium ohioense Schimp. *ex* Müll. Hal. (**Figure 1**) is the most common and widespread *Archidium* species in eastern North America (Snider 1975; Spence 2007). The species was recently discovered in the Gans Creek Wild Area in Rock Bridge Memorial State Park, Boone County, representing the first documented occurrence of the species in Missouri. It was found near a trail in a rocky, dolomite glade at the Coyote Bluff overlook. The specimen grew among grasses, intermixed with a thalloid liverwort, *Mannia fragrans* (Balb.) Frye & L. Clark, and a moss *Tortella humilis* (Hedw.) Jenn. The small plants of *Archidium* were initially overlooked in the field when the specimen was collected. Only later, while re-examining a duplicate specimen of the intended collection, *M. fragrans*, were the small *Archidium* plants discovered.

Although *Archidium ohioense* was previously reported from southwestern Missouri by Redfearn (1961), that specimen [Dade County, 1 mile west of Bona, *Redfearn 6987* (CANM, MO)] was later annotated as *A. alternifolium* (Dicks. *ex* Hedw.) Schimp. by Jerry Snider and cited in his 1975 taxonomic revision of the genus. *Archidium ohioense* and *A. alternifolium* are nearly identical morphologically. Both have similarly sized, ovate-lanceolate, acuminate upper vegetative and perichaetial leaves with entire to serrulate margins and single, percurrent to excurrent costae. Both also have similarly sized, rhomboidal upper and median leaf cells and similarly sized capsules and spores. However, *A. alternifolium* is paroicous with its antheridia and archegonia located in the same cluster, but not intermixed. The antheridia are commonly naked or enclosed by 1–2 pairs of bracts in the axils of the perichaetial leaves below the archegonia. By comparison, *A. ohioense* is autoicous with its antheridia and archegonia on the same plant, but not in the same cluster. In *A.*

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ohioense the antheridia are in small axillary buds consisting of 1–3 pairs of bracts positioned well below the perichaetia.

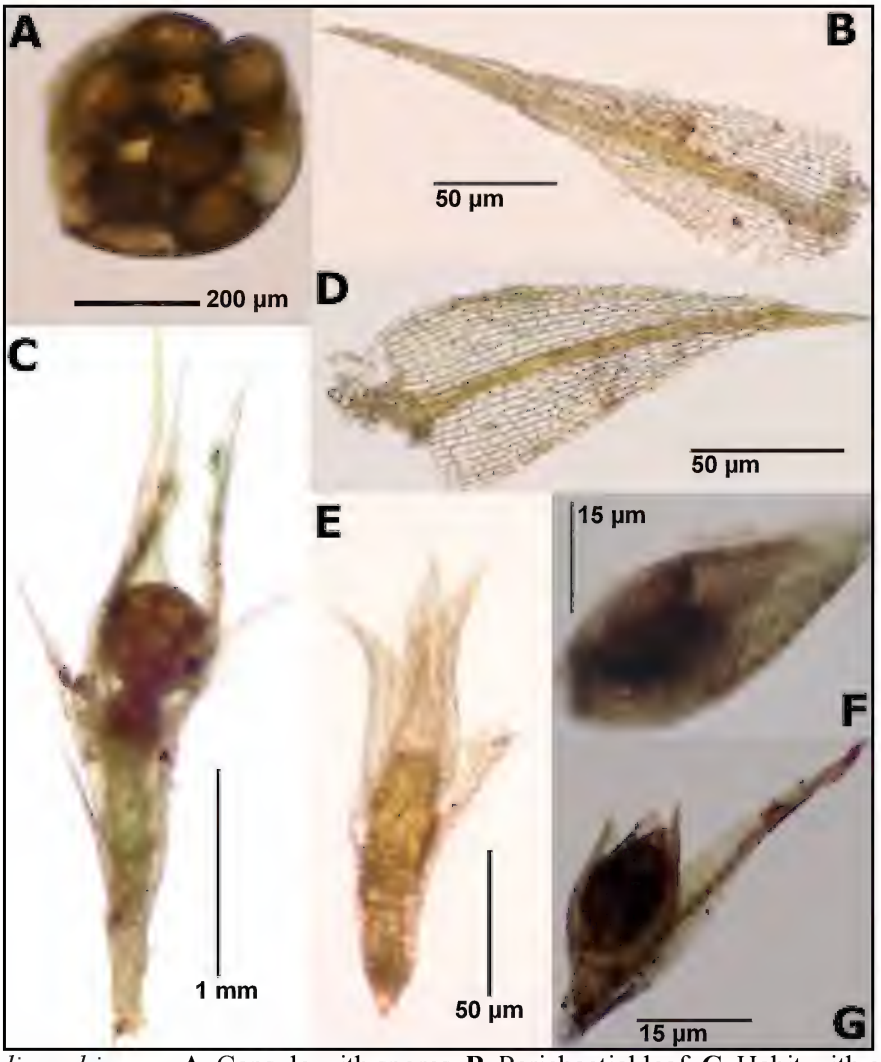

Figure 1. *Archidium ohioense*. **A.** Capsule with spores. **B.** Perichaetial leaf. **C.** Habit with capsule. **D.** Stem leaf. **E.** Lateral perichaetium. **F.** Perigonium with antheridia. **G.** Perigonium in leaf axil. All from *Atwood & Brinda 3173* (MO).

The occurrence of *Archidium ohioense* in Missouri is near the western edge of its expected distribution in eastern North America (Spence 2007). Although there are a few scattered reports from adjacent states, i.e., Illinois (McKnight 1987), Kansas (Churchill 1985) and Oklahoma (Snider 1975), most of these records are based on historical specimens, some 50 to over 150 years old (CNABH portal 2021). The scarcity of more recent *Archidium* specimens in herbaria is likely the result of their being overlooked rather than rare. Sterile plants are inconspicuous and could intentionally be passed over by collectors due to their resemblance to the habit of the weedy

Ceratodon purpureus (Hedw.) Brid., or more likely due to their superficial resemblance to sterile, unidentifiable species of *Pleuridium* Rabenh. or *Bruchia* Schwägr. Missouri bryologists also rarely focus their floristic efforts on disturbed habitats such as ditches, margins of arable fields and edges of trails where more populations of the species might be found. The addition of *A. ohioense* to the Missouri bryoflora increases the number of mosses reported from the state to 326 taxa (Atwood & Holmberg 2018; Darigo 2015; Holmberg & Atwood 2014).

> *Specimen cited:* **U.S.A. MISSOURI:** BOONE CO.: Gans Creek Wild Area, Rock Bridge Memorial State Park, along trail in rocky, dolomite glade, near edge of lookout on Coyote Bluff. On soil among grasses, *Mannia fragrans* and *Tortella humilis*, 12 May 2015. *Atwood & Brinda 3173* (MO 6764097).

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Bryophytes of Graham Cave State Park, Montgomery County, Missouri

LORIE A. HETRICK-VOLENBERG[1], JOHN J. ATWOOD[2], AND SAM LORD[3]

ABSTRACT. — An inventory of the bryophytes at Graham Cave State Park in east-central Missouri resulted in 131 taxa (105 mosses, 24 liverworts, and 2 hornworts). Sixty-two of these species are new records for Montgomery County. Four mosses (*Atrichum crispulum*, *Calliergonella lindbergii* var. *lindbergii*, *Mnium thomsonii*, and *Orthotrichum lescurii*) and two liverworts (*Riccia macallisteri* and *R. hirta*) are of conservation concern in Missouri. Based on a review of previously published checklists as well as unpublished survey data, the number of bryophyte taxa per acre at Graham Cave State Park is remarkably diverse compared to other Missouri State Parks.

INTRODUCTION

Graham Cave State Park comprises 386 acres within the Montgomery-Warren Oak Woodland/Forest Rugged Hills Land Type Association of the Outer Ozark Border Subsection of the Ozarks Highlands Section (Nigh & Schroeder 2002). Roughly 329 of those acres are in a well-preserved state, with 82 acres designated as a Missouri Natural Area. In 2007, Graham Cave State Park was included in the Missouri Department of Conservation's Missouri River Hills Conservation Opportunity Area; the designation identifies those areas deemed of high importance in preserving the state's biodiversity.

The park boasts 13 terrestrial natural communities (Nelson 2005), and a detailed 2007 soil survey yielded 28 soil types (Missouri State Parks n.d.). It is noteworthy that 188 of the 386 total acres of the park are sandstone-based natural communities with State Ranks of S2 (Imperiled) and S3 (Vulnerable). Graham Cave State Park is one of two Missouri State Parks with St. Peter Sandstone glades. This ecologically diverse park is designated a priority in The Nature Conservancy's Ozarks Ecoregional Conservation Assessment (The Nature Conservancy 2003), under the Central Missouri River Hills subsection.

The park's land is flanked by glaciated plains to the north and the Missouri River alluvial plain to the south. At higher elevations (~780 ft), oak/hickory woodlands dominate the loess-covered ridges, which give way through four major forested ravines and valleys, to the mesic forested bottomlands of the Loutre River floodplain (~560 ft). This change in elevation cuts through Ordovician and Devonian aged rock. One can see Ordovician Jefferson City-Cotter Dolomite outcrops and a small glade, St. Peter Sandstone glades, ridges and cliffs, and Cedar Valley Limestone glades and rock outcrops (**Figure 1**).

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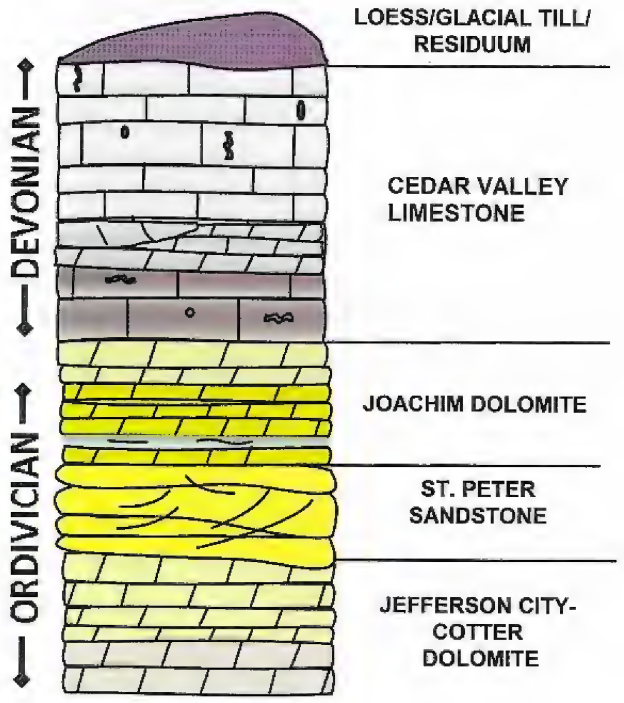

Figure 1. Rock strata layer of Graham Cave State Park. From Graham Cave State Park Natural Resource Management Plan (Missouri State Parks, n.d.).

Daniel Morgan Boone was the first European owner of the land just south of the park's boundaries, which he acquired via a Spanish Land Grant (Missouri State Parks n.d.). He sold the land in its original condition to Robert Graham in 1816. In 1847, Graham bought the adjacent land containing the cave from the U.S. government. Archaeological excavations in the cave from 1949-1955 were led by Dr. Charles Chapman, Director of American Archaeology at the University of Missouri. The excavations yielded important pre-historical data via the new technology of radiocarbon dating and established a time frame for the Archaic period in North America. The significance of this information led to the cave's designation as a National Historic Landmark in 1961 — the first archaeological site in the United States to be given this title. The Graham family understood the importance of this site and wished to see it preserved by donating the original 237 acres including the cave to the Missouri State Park Board in 1961. In 1966–67, Robert Klippel, a post-doctoral student under Chapman, completed research in the cave and surrounding lands (Klippel 1971) that aided in understanding environmental changes that took place since archaic times, stating "It is suggested that the oak-hickory forest discussed in chapter II was always present in the Loutre River Valley."

The earliest historical data giving an account of the vegetative environment are from the Federal Land Survey done in June and July of 1816 by William Rector. The survey reported an oak/hickory-dominated upper woodland, with the number of tree species increasing towards the bottomland. The survey also noted an open prairie roughly one mile east of the current park boundaries. Klippel noted that "...it can be safely assumed that very little of the natural vegetation could have been altered prior to the original land survey in this six-mile square study area."

(Klippel 1971). While the Loutre River bottomland was cleared for farming (and is currently in different stages of old-field succession), and a moderate level of timbering and grazing has occurred, human alterations to the landscape have been minimal during European occupation. Fire suppression has likely played a role in both the appearance and increase of certain species. The land surveys make no mention of eastern red cedar which is now prevalent throughout the park and has invaded many of the glades. Additionally, sugar maples have significantly increased in areas such as ridgetops that were once more open and dominated by oak and hickory. In 2007, the park acquired a 16+ acre tract just east of its entrance that was historically used as pasture and hay land and is currently in the beginning stages of a prairie restoration project.

Graham Cave State Park is rich in vascular plant biodiversity, but less is known about the non-vascular flora. Missouri State Park's maintains organismal records for each state park and historic site within its Natural Resource Inventory Database System. Graham Cave is documented as having more than 480 vascular plants, but little documentation of the bryophytes, lichens, and fungi of the park exist as no formal surveys have been conducted for these taxonomic groups (C. Crabtree, Natural Resource Steward, Missouri State Parks, personal communication, 2021). Over the last 50 years, 69 moss species and 15 liverwort species have been documented from Graham Cave State Park based on specimen records in the herbarium of the Missouri Botanical Garden. The purpose of this survey was to document the bryophyte diversity within Graham Cave State Park to establish a reference list of taxa and denote any species of conservation concern that occur within the park's boundaries.

METHODS

A bryophyte survey of Graham Cave State Park (**Figure 2**) was conducted from May 2020 to June 2021. Voucher specimens are deposited in the herbaria of the Missouri Botanical Garden and the Division of State Parks, Missouri Department of Natural Resources (MODNR). Complete locality and habitat data for the vouchered specimens can be accessed through Tropicos, the Garden's online database (http://www.tropicos.org). Specimens previously collected at Graham Cave State Park and deposited at MO were reviewed and are cited here only when the species was not recollected during this survey. Taxa are associated with the natural communities in which they were collected, with separate lists for hepatics and mosses, and are arranged alphabetically by genus, followed by species and infra-specific ranks. Classification of the mosses follows Flora of North America (2007, 2014), except for some deviations based on recent publications. Classification of liverworts follows Stotler and Crandall-Stotler (2017), and that of hornworts follows Stotler and Crandall-Stotler (2005), except for some deviations based on recent publications.

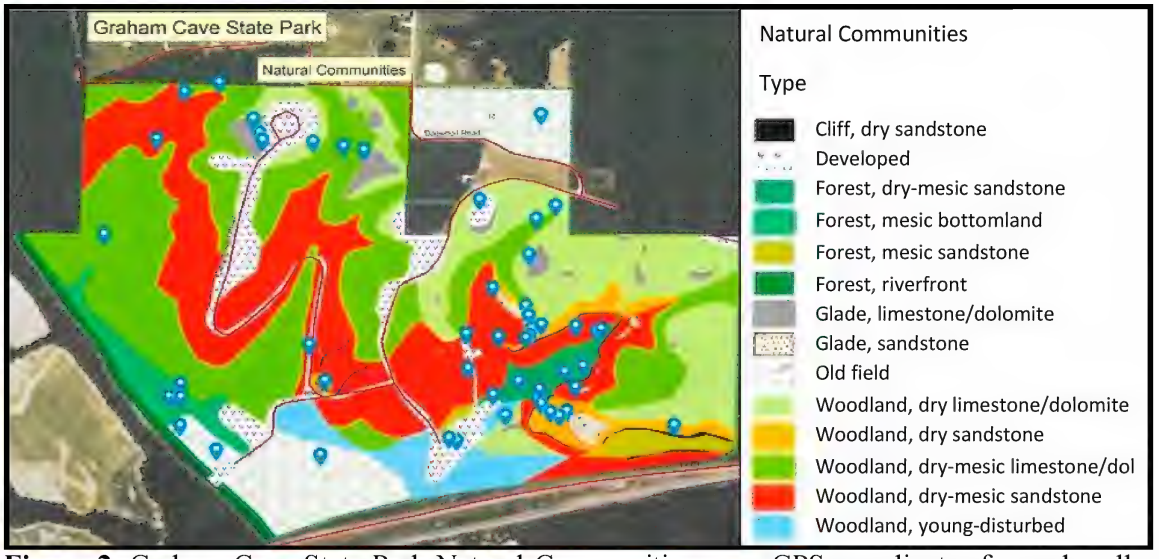

Figure 2. Graham Cave State Park Natural Communities map. GPS coordinates for each collection site were entered into Google maps, and then overlayed on top of the Natural Communities map. Blue flags indicate collection sites. The natural community assigned to each sample was based on site characteristics at each collection site. Adapted from Graham Cave State Park Natural Resource Management Plan (Missouri State Parks, n.d.).

RESULTS & DISCUSSION

As a result of fieldwork, 116 taxa were identified during this inventory (93 mosses, 21 liverworts, and 2 hornworts). These taxa were sampled from 10 terrestrial natural communities and 2 anthropogenically disturbed communities within the park. An additional 15 species (12 mosses and 3 liverworts) previously collected in the park, but not found during this survey, were verified and added to the list based on collections at MO. In total, 131 species of bryophytes (105 mosses, 24 liverworts, and 2 hornworts) are documented from Graham Cave State Park (**Table 1**). Sixty-two of these species are new records for Montgomery County (**Appendix 1**). These new records are particularly rich in liverwort taxa, as only two species (*Aneura pinguis* and *Frullania eboracensis*) had been reported previously from the county (Atwood 2014). Other noteworthy records include *Atrichum crispulum*, *Forsstroemia trichomitria* and *Ditrichum lineare*, all three of which are the first documented occurrences of these species in the state, north of the Missouri River (Darigo 2015). *Brachythecium rotaeanum*, a species not collected during the survey, is reported based on a specimen from the park (*Redfearn & Key 27764* [MO]) that had been previously misdetermined as *B. rivulare* Schimp. (Darigo 2015). Additionally, four mosses (*A. crispulum* [S2], *Calliergonella lindbergii* var. *lindbergii* [SU], *Mnium thomsonii* [S?], and *Orthotrichum lescurii* [S1]), and two liverworts (*Riccia macallisteri* [S1] and *R. hirta* [S2]) were found that are of conservation concern in Missouri (Missouri Department of Conservation 2021).

Extensive soils and natural community mapping in Graham Cave State Park allowed the opportunity to compare species within communities. Although collecting was not equivalently thorough within every community, a modest comparison between sandstone and limestone/dolomite communities can be made. The Dry Mesic Sandstone Woodland community had the most recorded bryophyte diversity with 36 taxa. The Sandstone Glade and Sandstone Dry Cliff communities had the second highest diversity with 33 taxa each. There are several

intermittent waterfall and seepage areas found within the Sandstone Dry Cliff communities that do not meet the criteria to be designated as Sandstone Moist Cliff communities (Missouri Natural Resources n.d.). Because these areas maintain a level of moisture greater than the typical Dry Cliff community and can host species of bryophytes not typically found in a Sandstone Dry Cliff community, it was important to identify the species found in these wet (w) areas of the Sandstone Dry Cliff community. They are given the designation x(w) in **Table 1**. Among the Limestone/Dolomite communities in the park, the Limestone/Dolomite Dry Woodland had the highest diversity with 23 recorded taxa. The total number of taxa collected within each community is given at the bottom of **Table 1**. All species except for three were able to be assigned to specific communities. Two un-assigned species (*Thuidium recognitum* and *Calliergonella curvifolia*) were from herbarium specimens previously collected at Graham Cave State Park (*Redfearn & Key 27732b* and *Feigley s.n.*, respectively [both MO]) and do not contain enough detail to assign a community. One species -*Brachythecium rotaeanum* (*Redfearn & Key 27764* [MO]) - could be assigned only to a general community of sandstone. These three specimens were collected over 35 years ago.

Overall, sandstone communities showed the highest diversity with 98 species represented, followed by limestone/dolomite communities with 41 species; 24 of these species were found in both communities. Sandstone communities comprise roughly 187 acres (48.63%) of the park's total acreage, while limestone/dolomite communities cover roughly 125 acres (32.5%). The number of bryophyte species per acre would be 0.52 and 0.33, respectively.

An interesting finding is the presence of *Campylium chrysophyllum* on thin soil over sandstone in the sandstone glade within the designated Natural Area. This glade receives calcium deposits in the runoff from the exposed limestone/dolomite bedrock above. *Campylium chrysophyllum* usually inhabits calcium-rich substrates, as shown by nine collections of this species during this inventory, with six occurrences in limestone/dolomite settings and one in the prairie restoration area.

As stressed in the Missouri Department of Natural Resources' strategic planning documents, a critical information gap exists in the documentation of the flora and fauna occurring within state parks. As a result of this survey, the bryophyte diversity at Graham Cave State Park was found to be comparable to the bryophyte diversity documented from other Missouri State Parks such as Taum Sauk (Holmberg & Atwood 2014), Roaring River (Hilton 1986) and Meramec (Nels Holmberg, personal communication, 2021). Graham Cave State Park has a notably smaller acreage than those parks, demonstrating the contribution bryophytes make to the overall floristic richness within the park. At the county level, the number of mosses recorded from Montgomery County increased from 91 to 127 taxa, while the number of liverworts and hornworts increase from 2 to 28 taxa. Montgomery County now has the greatest number of reported bryophytes for any county in the state north of the Missouri River. Only 19 Missouri counties have more than 125 mosses reported (Darigo 2015), while only 9 counties have more than 25 liverworts and hornworts reported (Atwood 2014). As demonstrated by this study, the importance of having protected natural resources such as those found within Missouri State Parks, and the need for their continued preservation, cannot be overstated.

ACKNOWLEDGMENTS

Thanks to Ken McCarty, Director of the Natural Resource Program in Missouri State Parks, for supporting this collaborative project with the Missouri Botanical Garden. We also thank Nels Holmberg for sharing his bryophyte survey data for several Missouri State Parks and William Buck, New York Botanical Garden, for his review of an earlier draft of the manuscript. Additional thanks to the Darigo family for supporting the herbarium studies of this project through a memorial gift to the Missouri Botanical Garden in honor of Carl E. Darigo.

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Table 1. Complete checklist of bryophytes in Graham Cave State Park, Montgomery County, Missouri, and their related communities. **Communities** – **1**: Bottomland Mesic Forest; **2**: Limestone/Dolomite Dry-Mesic Woodland; **3**: Limestone/Dolomite Dry Woodland; **4**: Limestone/Dolomite Glade; **5**: Sandstone Glade; **6**: Sandstone Dry Cliff [(**w**): wet]; **7**: Sandstone Dry Woodland; **8**: Sandstone Dry-Mesic Woodland; **9**: Sandstone Dry-Mesic Forest; **10**: Sandstone Mesic Forest; **11**: Developed; **12**: Prairie Restoration.

Species	**Communities (see key above)**											
Hepatics	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
Anthoceros punctatus L.						x(w)						
Asterella tenella (L.) P. Beauv.					x			x				
Calypogeia neogaea (R.M. Schust.) Bakalin						x						
Cephaloziella divaricata (Sm.) Schiffn.					x	x						
Chiloscyphus pallescens (Ehrh. *ex* Hoffm.) Dumort.						x(w)		x				
Cololejeunea biddlecomiae (Austin *ex* Pearson) A. Evans									x			
Conocephalum salebrosum Szweyk., Buczk. & Odrzyk.						x(w)						
Frullania asagrayana Mont.						x						
Frullania ericoides (Nees) Mont.								x				
Frullania inflata Gottsche					x			x				
Frullania riparia Hampe *ex* Lehm.		x	x	x								
Geocalyx graveolens (Schrad.) Nees					x							
Lophocolea coadunata (Sw.) Mont.								x				
Lophocolea heterophylla (Schrad.) Dumort.								x				
Mannia fragrans (Balb.) Frye & L. Clark					x							
Odontoschisma sphagni (Dicks.) Dumort.					x							
Phaeoceros carolinianus (Michx.) Prosk.						x(w)		x				
Porella platyphylla (L.) Pfeiff.		x										
Porella platyphylloidea (Schwein.) Lindb.	x		x	x				x	x			
Radula obconica Sull.							x					
Reboulia hemisphaerica subsp. *hemisphaerica* (L.) Raddi				x		x(w)						
Riccia beyrichiana Hampe *ex* Lehm.					x							
Riccia hirta (Austin) Underw.					x							
Riccia macallisteri M. Howe				x								
Scapania nemorea (L.) Grolle					x		x					
Syzygiella autumnalis (DC.) K. Feldberg, Váňa, Hentschel & Heinrichs							x					

Species	Communities (see key above)											
Mosses	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
Anomodon minor (Hedw.) Lindb.	x		x						x			
Anomodon tristis (Ces.) Sull.	x							x				
Arrhenopterum heterostichum Hedw.						x		x				
Atrichum angustatum (Brid.) Bruch & Schimp.	x				x	x				x		
Atrichum crispulum Schimp. *ex* Besch.								x				
Aulacomnium palustre (Hedw.) Schwägr.					x			x				
Barbula unguiculata Hedw.											x	
Bartramia pomiformis Hedw.						x						
Brachythecium acuminatum (Hedw.) Austin								x		x		
Brachythecium laetum (Brid.) Schimp.	x		x					x	x		x	x
Brachythecium rotaeanum De Not.												
Brothera leana (Sull.) Müll. Hal.					x							
Bryoandersonia illecebra (Hedw.) H. Rob.						x			x			
Bryum argenteum Hedw.											x	
Callicladium haldaneanum (Grev.) H.A. Crum						x(w)						
Callicladium imponens (Hedw.) Hedenäs, Schlesak & D. Quandt								x				
Calliergonella curvifolia (Hedw.) B.H. Allen												
Calliergonella lindbergii var. *lindbergii* (Mitt.) Hedenäs		x						x	x			
Campylium chrysophyllum (Brid.) Lange			x	x	x			x				x
Ceratodon purpureus (Hedw.) Brid.					x							
Claopodium rostratum (Hedw.) Ignatov	x		x		x			x	x			
Clasmatodon parvulus (Hampe) Sull.									x			
Climacium americanum Brid.						x						
Dicranella heteromalla (Hedw.) Schimp.		x			x							
Dicranum condensatum Hedw.							x					
Dicranum scoparium Hedw.					x		x	x				
Didymodon rigidulus var. *gracilis* (Hook. & Grev.) R.H. Zander				x								
Ditrichum lineare (Sw.) Lindb.				x								
Ditrichum pallidum (Hedw.) Hampe					x	x(w)						
Drummondia prorepens (Hedw.) E. Britton											x	
Entodon seductrix (Hedw.) Müll. Hal.			x		x				x			
Eurhynchiastrum pulchellum (Hedw.) Ignatov & Huttunen									x			
Fissidens adianthoides Hedw.						x(w)		x				
Fissidens bryoides Hedw.	x											
Fissidens bushii (Cardot & Thér.) Cardot & Thér.								x				
Fissidens dubius P. Beauv.		x	x					x				

Species	Communities (see key above)											
Mosses (cont.)	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
Fissidens fontanus (Bach. Pyl.) Steud.			x						x			
Fissidens minutulus Sull.						x(w)						
Fissidens subbasilaris Hedw.			x									
Fissidens taxifolius Hedw.						x(w)			x	x		
Forsstroemia trichomitria (Hedw.) Lindb.	x											
Funaria hygrometrica Hedw.				x								
Geheebia tophacea (Brid.) R.H. Zander						x(w)						
Gemmabryum caespiticium (Hedw.) J.R. Spence					x						x	
Gemmabryum dichotomum (Hedw.) J.R. Spence & H.P. Ramsay								x				
Grimmia laevigata (Brid.) Brid.					x		x					
Grimmia pilifera P. Beauv.					x		x					
Gymnostomum aeruginosum Sm.								x				
Haplocladium microphyllum (Sw. *ex* Hedw.) Broth.	x											
Haplocladium virginianum (Brid.) Broth.					x		x					
Hedwigia ciliata (Hedw.) P. Beauv.							x				x	
Homalotheciella subcapillata (Hedw.) Broth.												
Homomallium adnatum (Hedw.) Broth.			x	x								
Hygroamblystegium varium (Hedw.) Mönk. var. *humile* (P. Beauv.) Vanderp. & Hedenäs									x	x		x
Hygroamblystegium varium var. *varium* (Hedw.) Mönk.		x	x			x(w)		x	x	x	x	
Hymenostylium recurvirostrum (Hedw.) Dixon						x(w)						
Hyophila involuta (Hook.) A. Jaeger									x			
Koponeniella graminicolor (Brid.) Huttunen, Ignatov, Min Li & Y.F. Wang						x(w)			x			
Leptodictyum riparium (Hedw.) Warnst.		x						x				
Leskea gracilescens Hedw.	x		x						x		x	
Leucobryum glaucum (Hedw.) Ångstr.					x		x	x				
Leucodon julaceus (Hedw.) Sull.	x											
Mnium marginatum (Dicks.) P. Beauv.						x(w)						
Mnium stellare Hedw.						x(w)						
Mnium thomsonii Schimp.						x(w)						
Orthodicranum montanum (Hedw.) Loeske						x						
Orthotrichum lescurii Austin			x									
Orthotrichum ohioense Sull. & Lesq.	x		x									
Orthotrichum parvulum Mitt.				x							x	
Orthotrichum pumilum Sw.											x	
Orthotrichum stellatum Brid.	x			x								
Pelekium minutulum (Hedw.) Touw	x											

Species	Communities (see key above)											
Mosses (cont.)	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
Philonotis fontana (Hedw.) Brid.					x			x				
Philonotis marchica (Hedw.) Brid.						x(w)						
Physcomitrium pyriforme (Hedw.) Brid.											x	
Plagiomnium ciliare (Müll. Hal.) T.J. Kop.		x	x			x		x				
Plagiomnium cuspidatum (Hedw.) T.J. Kop.			x		x			x	x	x		
Platygyrium repens (Brid.) Schimp.	x				x				x			
Pleuridium subulatum (Hedw.) Rabenh.					x							
Pohlia annotina (Hedw.) Lindb.												
Pohlia nutans (Hedw.) Lindb.					x							
Polytrichum commune Hedw.							x					
Polytrichum juniperinum Hedw.					x		x					
Pseudanomodon attenuatus (Hedw.) Ignatov & Fedosov	x		x					x	x			
Ptychomitrium incurvum (Schwägr.) Spruce							x					
Ptychostomum creberrimum (Taylor) J.R. Spence & H.P. Ramsay			x			x	x					
Ptychostomum pseudotriquetrum (Hedw.) J.R. Spence & H.P. Ramsay *ex* Holyoak & N. Pedersen				x	x	x			x			
Pylaisia condensata (Mitt.) A. Jaeger	x			x								
Rhodobryum ontariense (Kindb.) Paris			x					x				
Rhynchostegium serrulatum (Hedw.) A. Jaeger								x		x		x
Rosulabryum capillare (Hedw.) J.R. Spence						x						
Schistidium crassithecium H.H. Blom *ex* B.H. Allen									x			
Schistidium viride H.H. Blom & Darigo			x	x							x	
Sematophyllum adnatum (Michx.) E. Britton				x								
Sematophyllum demissum (Wilson) Mitt.							x					
Syntrichia ruralis (Hedw.) F. Weber & D. Mohr				x								
Taxiphyllum deplanatum (Bruch & Schimp. *ex* Sull.) M. Fleisch.				x				x		x		
Taxiphyllum taxirameum (Mitt.) M. Fleisch.	x											
Tetraphis pellucida Hedw.						x						
Thelia asprella (Schimp.) Sull.			x					x				
Thuidium delicatulum (Hedw.) Schimp.		x				x		x				
Thuidium recognitum (Hedw.) Lindb.												
Tortella humilis (Hedw.) Jenn.			x								x	
Tortula obtusifolia (Schwägr.) Mathieu					x				x		x	
Weissia controversa Hedw.				x	x		x					
Total Species in each Community	**18**	**9**	**23**	**18**	**33**	**33**	**16**	**36**	**23**	**8**	**14**	**4**

Appendix 1. Taxa representing new Montgomery County records. All collection numbers are those of the first author unless otherwise noted. Voucher specimens for each taxon are deposited at MO; repositories for duplicate specimens are indicated below.

Hepatics

Anthoceros punctatus, *129*; *Asterella tenella*, *40*; *Calypogeia neogaea*, *62*; *Cephaloziella divaricata*, *12A*; *Chiloscyphus pallescens*, *52*; *Cololejeunea biddlecomiae*, *198*; *Frullania asagrayana*, *22*; *F. ericoides*, *177*; *F. inflata, 161*; *F. riparia*, *245*; *Geocalyx graveolens*, *164*; *Lophocolea coadunata*, *178*; *L. heterophylla*, *207*; *Mannia fragrans*, *155*; *Odontoschisma sphagni, 164A*; *Phaeoceros carolinianus*, *74*; *Porella platyphylla*, *82*; *P. platyphylloidea*, *116*; *Radula obconica*, *Holmberg 3382*; *Reboulia hemisphaerica* subsp. *hemisphaerica*, *31* (MODNR); *Riccia beyrichiana*, *Atwood 3185*; *R. hirta*, *Atwood 3184*; *R. macallisteri*, *249*; *Scapania nemorea*, *76*; *Syzygiella autumnalis*, *5A*.

Mosses

Atrichum crispulum, *42* (MODNR); *Aulacomnium palustre*, *41* (MODNR); *Brachythecium rotaeanum*, *Redfearn & Key 27764*; *Didymodon rigidulus* var. *gracilis*, *83*; *Ditrichum lineare, 221*; *Eurhynchiastrum pulchellum*, *199*; *Fissidens adianthoides*, *61*; *F. bryoides*, *145*; *F. bushii*, *47*; *F. dubius*, *218*; *F. fontanus*, *193*; *F. subbasilaris*, *110*; *Forsstroemia trichomitria*, *143*; *Geheebia tophacea*, *57*; *Gemmabryum caespiticium*, *68*; *Grimmia laevigata*, *156*; *G. pilifera*, *182*; *Haplocladium microphyllum*, *135*; *H. virginianum*, *20*; *Homalotheciella subcapillata*, *229*; *Hygroamblystegium varium* var. *humile, 236*; *H. varium* var. *varium*, *46A*; *Hyophila involuta*, *197A*; *Koponeniella graminicolor*, *201*; *Mnium thomsonii*, *64*; *Orthotrichum ohioense*, *149*; *O. stellatum*, *87*; *Pelekium minutulum*, *142*; *Philonotis marchica*, *56*; *Pleuridium subulatum*, *18*; *Ptychomitrium incurvum*, *183*; *Ptychostomum creberrimum, 75* (MODNR); *P. pseudotriquetrum, 65*; *Pylaisia condensata*, *89*; *Schistidium crassithecium*, *197*; *Taxiphyllum deplanatum*, *210*; *Tortula obtusifolia*, *98*.

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Revised Prairie Restoration Flora of the St. Louis Region of Illinois and Missouri

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ABSTRACT. — An expanded and updated list of 518 taxa of vascular plants suitable for use in prairie restorations in the St. Louis region of Illinois and Missouri is presented. Included are synonymy cross-references with the original 2003 list, as well as new information on phenology and the designated state conservation status of relevant species in Illinois and Missouri.

INTRODUCTION

This is an updated and expanded account of plants suitable for use in prairie restorations in the greater St. Louis region, building on the Prairie Restoration Flora of the St. Louis Region of Illinois and Missouri (Ladd 2003). This list has been edited and published here to be digitally accessible. This version includes updated nomenclature, C values, wetness rankings, and local phenology data for each species, generally based on Ladd and Thomas (2015).

Included here are additional species which have been added based on the authors' experience and recommendations of experts familiar with local flora and natural communities, (see Acknowledgements). For this updated list, we have added two new columns denoting the state conservation status of each species for both Missouri and Illinois, as well as two new columns listing flowering and seed collection times. The following text is largely from Ladd (2003), modified to reflect changes in the list's citations, formatting, and content.

DISCUSSION

Situated at the confluence of the two largest rivers in midcontinental North America, the St. Louis metropolitan area of Illinois and Missouri was in presettlement times characterized by a diverse tapestry of prairies, wetlands, and predominantly open and grassy woodlands. As the region developed into a major urban and suburban complex during the past 240 years, the vast majority of this natural habitat has been obliterated or severely degraded. In recent years, interest has developed in sustaining and restoring examples of the region's natural heritage. This has resulted in a growing number of attempts to restore, at various scales, examples of tallgrass prairie vegetation.

Tallgrass prairies in Illinois and Missouri support high levels of vascular diversity, which in turn provide potential habitat and associations for correspondingly high diversity in other organismal groups. However, most of the prairie restorations in the region are characterized by low plant diversity and/or the presence of non-native species which were deliberately included in

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the planting mix, often because these species were mistakenly thought to be appropriate for local restorations.

This is a list of vascular plants appropriate for inclusion in prairie restorations in the greater St. Louis metropolitan region of Illinois and Missouri. This region roughly encompasses an area spanning five Illinois counties and six Missouri counties plus the independent city of St. Louis (**Figure 1**). The 518 species of plants on this list (486 reported from Illinois and 509 from Missouri) have been documented as components of high quality prairie remnants that characterized large portions of the area prior to European settlement (e.g., Schroeder 1981). All of these plants are appropriate components of prairie restoration and ecological rehabilitation projects, although many species (those with low conservatism values) would never be deliberately planted in restorations; several species have the potential to become disproportionately abundant in poorly executed or unmanaged restorations.

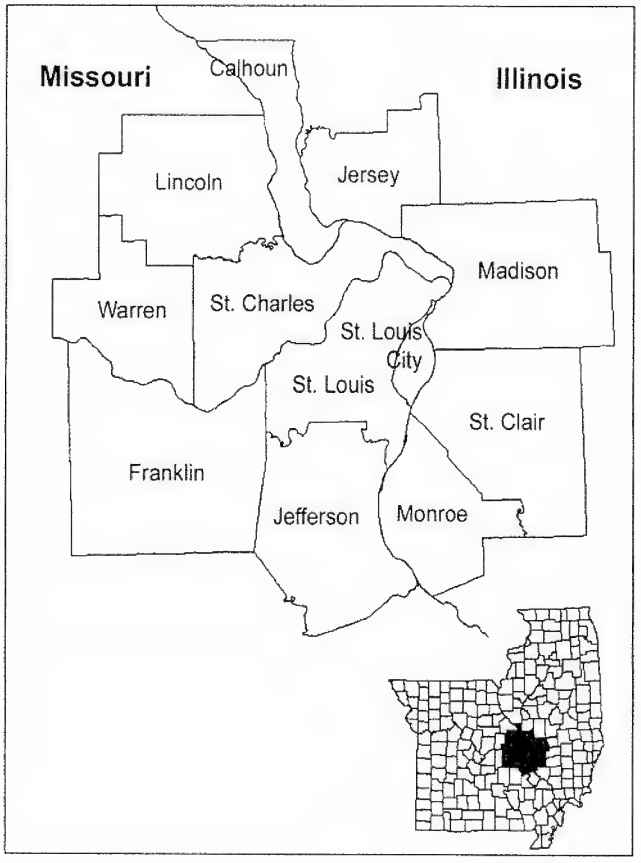

Figure 1. Counties in the St. Louis metropolitan region of Illinois and Missouri.

Species are listed here in alphabetical order by scientific name, following the species concepts and nomenclature of Ladd and Thomas (2015), which largely follows the naming conventions of Yatskievych (1999, 2006, 2013), as well as Gleason and Cronquist (1991), the latter of which was also the primary nomenclatural source for the original version of this list. Although this work is not intended as a synonymy catalog or attempt to reconcile taxonomic debate, in the interest of a clear understanding of suitable plant materials, synonymous plant names employed by other manuals likely to be used in the region are included in the list and cross-

referenced in **Appendix A**. Despite some flux in scientific names of plants, this list's tracking of taxonomic concepts will facilitate rapid, accurate communication regarding plant materials, while minimizing ambiguity and miscommunication.

The synonymy listing accommodates names used in Mohlenbrock's Illinois flora (2002), Steyermark's Missouri flora (1963), Yatskievych (1999, 2006, 2013), Weakley (2020), and Ladd's (1997) list of midwestern tallgrass flora, which largely followed the naming conventions of Kartesz (1994). Varietal and subspecific names are provided only for infraspecific taxa deemed ecologically distinct and for which other varieties or subspecies are not suitable for the region.

Following the accepted scientific name of each plant is the common name derived from Ladd and Thomas (2015). Some names which are considered offensive have also been changed to be more culturally appropriate. Because there is no standardization of common names, restorationists are cautioned that selecting plant materials by common name is inherently problematical, and there are no assurances that the material provided is actually what was desired.

Columns for Illinois and Missouri follow the common name column. A number in a column indicates that the plant is known from the St. Louis area counties in that state. A blank spot in a column means that the plant is not known to occur in the St. Louis area counties in that state, although it may occur elsewhere in the state. The state segregation is important because for some species the Mississippi River has proven to be a significant barrier, and both Illinois and Missouri have prairie species in their respective St. Louis area counties that are not known from, or are very rare in, the entire adjoining state. An example of this is the blue wild indigo, *Baptisia australis*, which is a regular component of prairie and glade vegetation in much of southern Missouri, including the St. Louis region, but which is unknown as a native plant in Illinois. When planning prairie restoration projects, the decision to include specific plants should be conceptualized from both a regional and state perspective.

The numbers under each state column are the coefficients of conservatism, or C values, for the plants in each state. These values, ranging from 0 to 10, essentially indicate the obligate fidelity each species displays to stable native systems evocative of the milieu of presettlement natural communities that characterized the region. Essentially, the higher the number, the higher the "natural quality" of the plant, and the degree to which it both requires and is indicative of high quality native systems. These concepts are explained in detail in Taft et al. (1997), including C values for the Illinois flora, and Ladd and Thomas (2015), including C values for the Missouri flora. A "?" in one of the state columns indicates that the species occurs in that state, but its C value is unlisted or unknown. For this list, an underlined numeral indicates that the value listed was derived from broader taxonomic concept that included the listed taxon. For example, this list includes both *Vulpia octoflora* var. *glauca* and var. *octoflora*, but for Illinois, only the broader classification *Vulpia octoflora* has an assigned C value, so this list includes that single value for both listed varieties as an underlined numeral. Therefore, the underlined numeral is used to indicate uncertainty and to caution restorationists that this number is only included to give a general estimate and may not be accurate for that particular subspecies or variety.

Note that the C values for the two states can differ, as the conceptual universe for establishing the C values for each state is the behavior of the species across the entire state.

Different C values do not indicate that there are profound differences in the autecological pattern of a given species on each side of the Mississippi River in the St. Louis region. These values are provided merely as guidelines to the sensitivity and fidelity of the plants. In practice, St. Louis area restorationists would perhaps be best served by averaging the two values to gain an understanding of the relative performance of the species versus other components of regional prairie vegetation.

Following the C value column for each state is a column listing the wetness rating for each plant. This number, ranging from -5 through 0 to +5, is a relative indication of the degree to which a given plant species is restricted to wetlands. Higher numbers indicate a greater predilection for, or at least tolerance of, drier site conditions. This concept is explained in more detail in Ladd (1997), as well as in Ladd and Thomas (2015), from which the wetness values for this list were derived. Although the numbers are extremely useful in developing restoration plans and plant materials lists, users should be aware that these rankings were developed across a broad region of the Midwest, and do not always reflect local vagaries in species behavior. As a practical matter, restorationists should always seek to include some plant materials typically associated with both wetter and drier conditions than those of the project area. This both ensures that site restorations are not held hostage to preconceptions of "appropriate" plant materials, and allows sufficient buffering capacity to facilitate optimum plant diversity as the restoration becomes established and self-induces changes in local hydrology and other site conditions.

The next column in the list provides the physiognomy of the plant in the bi-state region according to the following categories: annual forb, biennial forb, perennial forb, annual grass, perennial grass, perennial sedge, shrub, tree, or cryptogram (ferns and fern allies). The next two columns include information that Ladd (2003) had hoped would be added in future versions of this document, consisting of local flowering phenology and seed collection time periods. Primarily, the three volumes of the Flora of Missouri (Yatskievych 1999, 2006, 2013), were used for populating the phenology column. Additional local data for these columns came from unpublished collection records contributed by Adam Rembert (phenology data), James Faupel (seed collection data), and other Missouri Botanical Garden staff. All information in the seed collection column comes from St. Louis regional data, as does anything marked with an asterisk (*) in the flowering time frame column.

Following this are two columns new to this version of the list which provide the Missouri and Illinois conservation status rankings for each species, using the state ranking system originally developed by The Nature Conservancy and used by NatureServe (2021). For each state, species are assigned a rank describing their degree of imperilment within the state, which include the following categories: S1 (Critically Imperiled), S2 (Imperiled), S3 (Vulnerable), S4 (Apparently Secure), S5 (Secure), SU (Status Unrankable). Those that are not listed or have not been given a ranking have been labeled as "Unranked" in this list. In addition to state rankings, these columns may also contain endangerment status terms "Endangered" or "Threatened" for species that have been given these protected statuses by the state. All of these concepts are explained further in the conservation checklist from the Missouri Department of Conservation (2021), which also provides the Missouri state rankings and endangerment statuses. The NatureServe online database (2021) was used to confirm rankings for both states, and the checklist from Illinois Endangered Species Protection Board (2020) provided data for Illinois. Ultimately, these columns are intended to be

used as a supplement to the C value columns to make restorationists aware that certain prairie species they may want to procure for their plantings may be in danger of harm from overcollection or may even be illegal to collect and plant without appropriate permits. Restorationists should be cautious of where they source their seed and plant materials and try to get as local a genotype of each species as possible.

For some plants in the list, comments are appended following the conservation status entries for the plant. These comments provide additional information about the habitats and soils for the plant, nomenclatural or taxonomic issues of interest to restorationists, and ecological restoration work. We hope that future versions of this list will include more detailed information on pollinators, planting and germination requirements, lists of exotic species that appear in prairies, and maintenance information to help guide successful prairie reconstructions and restorations. The editors of this revision hope to have a more substantial guide to St. Louis prairie reconstruction, covering the above requests and more, within the next few years. The Excel file containing this flora list is available at: http://litzsinger.org/research/BaranskiFaupel2021STLPrairiePlantList.xlsx.

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Scientific Name	Common Name	MO	IL	Wet	Physiog	Flowering Time Frame	Seed Collection Time Frame	Missouri State-Listing	Illinois State-Listing	Comments
Acalypha gracilens	slender mercury	3	4	5	A-FORB	Jun-Oct		Unranked	Unranked	sterile acidic soil
Acalypha virginica	Virginia mercury	2	2	3	A-FORB	Jul-Oct		Unranked	Unranked	
Achillea millefolium	yarrow	1	?	3	P-FORB	May-Nov | Late May-Jul*	Jun-Oct	Unranked	Unranked	
Agalinis aspera *Gerardia aspera* (S)	rough false foxglove		#	3	A-FORB	Aug-Oct		Unranked	Unranked	
Agalinis auriculata *Gerardia auriculata* (S), *Tomanthera auriculata* (M)	eared false foxglove	10	8	5	A-FORB	Aug-Sep		S3	S2	
Agalinis purpurea *Gerardia purpurea* (S)	purple false foxglove	10	6	-3	A-FORB	Jul-Sep	Oct	S2	Unranked	
Agalinis skinneriana *Gerardia skinneriana* (S)	pale false foxglove	7	9	3	A-FORB	Jul-Oct		S3	S2	
Agalinis tenuifolia *Gerardia tenuifolia* (S)	slender false foxglove	4	5	0	A-FORB	Aug-Oct | Late Aug-Nov*	Sep-Nov	Unranked	Unranked	also in dry sites
Agrimonia parviflora	swamp agrimony	5	5	-3	P-FORB	Jul-Aug | Aug-Oct*	Sep-Nov	Unranked	Unranked	
Agrostis elliottiana	awned bent grass	3	5	3	A-GRASS	Apr-Jun		Unranked	S2	
Agrostis hyemalis	tickle grass	3	2	0	P-GRASS	Apr-Jul		Unranked	S5	
Agrostis perennans var. *perennans*	upland bent grass	3	4	3	P-GRASS	Jul-Oct		Unranked	S4	

Scientific Name	Common Name	MO	IL	Wet	Physiog	Flowering Time Frame	Seed Collection Time Frame	Missouri State-Listing	Illinois State-Listing	Comments
Allium canadense *A. canadense* var. *canadense* (Y)	wild garlic	2	2	3	P-FORB	Apr-Jul | Late Jun*	Aug	Unranked	S5	mesic & wet-mesic prairie
Allium stellatum	prairie onion	6	#	5	P-FORB	Jul-Nov | Jul*	Oct-Dec	Unranked	S2	dry limestone soil; this entry is from the original list but local botanists debate its place in prairies
Ambrosia artemisiifolia	common ragweed	0	0	3	A-FORB	Jul-Nov | Late Aug-Sep*		Unranked	Unranked	native weed
Ambrosia bidentata	southern ragweed	0	0	5	A-FORB	Jul-Oct		Unranked	Unranked	native weed
Ambrosia psilostachya *A. coronopifolia* (L,S)	western ragweed	3	2	3	P-FORB	Aug-Oct		Unranked	Unranked	
Ambrosia trifida	giant ragweed	0	0	0	A-FORB	Jul-Sep | Sep*		Unranked	Unranked	native weed
Amorpha canescens	lead plant	8	8	5	SHRUB	May-Aug	Aug-Nov	Unranked	Unranked	
Amorpha fruticosa	indigo bush	6	6	-3	SHRUB	May-Jun | May-Jun*	Sep-Oct	Unranked	Unranked	
Anagallis minima *Centunculus minimus* (S)	chaffweed	5	5	5	A-FORB	May-Aug		Unranked	Unranked	
Andropogon gerardii including var. *chrysocomus* (Y)	big bluestem	5	5	0	P-GRASS	Jun-Sep | Late Jul-Aug*	Sep-Nov	Unranked	Unranked	

Scientific Name	Common Name	MO	IL	Wet	Physiog	Flowering Time Frame	Seed Collection Time Frame	Missouri State-Listing	Illinois State-Listing	Comments
Andropogon gyrans *A. elliottii* var. *elliottii* (S)	Elliott's broomsedge	3	3	5	P-GRASS	Aug-Nov		Unranked	S4	
Andropogon virginicus as var. *virginicus* (W)	broomsedge	2	1	3	P-GRASS	Aug-Nov	Oct-Nov	Unranked	S3	
Androsace occidentalis	rock jasmine	3	4	3	A-FORB	Mar-Jun		Unranked	Unranked	limestone
Anemone canadensis *Anemonastrum canadensis* (W)	meadow anemone	6	4	-3	P-FORB	May-Jul	Aug	Unranked	S3	wet & wet-mesic prairie
Anemone cylindrica	thimbleweed		8	5	P-FORB	Jun	Oct	S2	S3	dry prairie slopes
Anemone virginiana as var. *alba* (W)	tall anemone	4	4	3	P-FORB	Jun-Aug	Aug-Nov	Unranked	S5	this entry is from the original list, but local botanists debate its place in prairies
Antennaria neglecta	field cat's foot	4	4	5	P-FORB	Apr-Jun		Unranked	Unranked	
Antennaria parlinii including subsp. *fallax* (Y) *A. plantaginifolia* (S)	ladies' tobacco	5	4	5	P-FORB	Apr-Jun	Jul	Unranked	Unranked	
Apios americana	ground nut	6	3	-3	P-FORB	Jul-Sep | Jul-Aug*		Unranked	Unranked	
Apocynum cannabinum	prairie dogbane	3	2	3	P-FORB	Jun-Aug | Late May-Jul*	Sep-Oct	Unranked	Unranked	
Apocynum sibiricum included in *A. cannabinum* (Y)	clasping dogbane	3	2	3	P-FORB	Jun-Aug		Unranked	Unranked	
Aristida dichotoma var. *curtissii* *A. curtissii* (W)	churchmouse three-awn	3	2	5	A-GRASS	Aug-Oct		Unranked	Unranked	
Aristida dichotoma var. *dichotoma*	poverty grass	3	2	5	A-GRASS	Aug-Oct		Unranked	Unranked	
Aristida longespica var. *longispeca*	slimspike three-awn	2	2	5	A-GRASS	Jul-Oct		Unranked	Unranked	

Scientific Name	Common Name	MO	IL	Wet	Physiog	Flowering Time Frame	Seed Collection Time Frame	Missouri State-Listing	Illinois State-Listing	Comments
Aristida oligantha	prairie three-awn	1	0	5	A-GRASS	Jun-Oct		Unranked	S5	
Aristida purpurascens	arrow feather	5	5	0	P-GRASS	Aug-Oct	Aug-Nov	Unranked	S3	
Arnoglossum atriplicifolium *Cacalia atriplicifolium* (S)	pale prairie plantain	4	5	5	P-FORB	Jun-Oct | Late Jul-Sep*	Oct	Unranked	Unranked	
Arnoglossum plantagineum *Cacalia tuberosa* (S)	prairie plantain	8	#	0	P-FORB	May-Aug | Jul*		Unranked	Unranked	
Artemisia ludoviciana var. *ludoviciana*	white sage	3	2	5	P-FORB	Jun-Oct	Oct-Dec	Unranked	Unranked	
Asclepias amplexicaulis	sand milkweed	7	7	5	P-FORB	Apr-Jul	Sep	Unranked	Unranked	especially in sand
Asclepias hirtella	tall green milkweed	4	6	5	P-FORB	May-Aug	Sep-Oct	Unranked	Unranked	
Asclepias incarnata as var. *incarnata* (W)	swamp milkweed	4	4	-5	P-FORB	Jun-Aug | Jul-Aug*	Sep-Oct	Unranked	Unranked	
Asclepias meadii	Mead's milkweed	10		5	P-FORB	May-Jun		S2, Endangered	S2, Endangered	Federally Threatened
Asclepias purpurascens	purple milkweed	6	7	3	P-FORB	May-Jul	Jun-Aug	Unranked	Unranked	
Asclepias stenophylla	glade milkweed	9		5	P-FORB	May-Jul		Unranked	S2, Endangered	
Asclepias sullivantii	prairie milkweed	8	7	5	P-FORB	Jun-Jul | Late Jun-Jul*	Sep-Nov	Unranked	Unranked	also in wet prairie
Asclepias syriaca	common milkweed	0	0	3	P-FORB	May-Aug | Jun-Jul*	Sep-Nov	Unranked	Unranked	
Asclepias tuberosa subsp. *interior* as var. *cordata* (W)	butterfly weed	5	5	5	P-FORB	May-Sep | Late Jun*	Aug-Nov	Unranked	Unranked	
Asclepias verticillata	whorled milkweed	2	1	5	P-FORB	May-Sep	Sep-Nov	Unranked	Unranked	
Asclepias viridiflora	short green milkweed	7	9	5	P-FORB	May-Aug	Oct-Nov	Unranked	Unranked	

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Asclepias viridis	green-flowered milkweed	5	6	5	P-FORB	May-Jun	Jul-Oct	Unranked	Unranked	
Astragalus canadensis as var. *canadensis* (W)	Canadian milk vetch	6	7	0	P-FORB	Jun-Aug	Jul-Sep	Unranked	Unranked	
Astragalus crassicarpus var. *trichocalyx* *A. mexicanus* var. *trichocalyx* (S)	ground plum	7	8	5	P-FORB	Apr-May	Jun-Jul	Unranked	S1, Endangered	
Astragalus distortus as var. *distortus* (W)	bent milk vetch	6	8	5	P-FORB	Apr-Jun	Jun	Unranked	Unranked	open rocky sites
Baptisia alba var. *macrophylla* *B. leucantha* (S)	white wild indigo	6	6	3	P-FORB	May-Jul | Jun-Oct*	Jul-Oct	Unranked	Unranked	
Baptisia australis var. *minor*	blue wild indigo	8		5	P-FORB	Apr-Jun	Jul-Oct	Unranked	Unranked	
Baptisia bracteata var. *leucophaea* *B. leucophaea* (S)	cream wild indigo	7	9	5	P-FORB	Apr-Jun	Aug	Unranked	Unranked	
Bidens aristosa	swamp marigold	1	1	-3	A-FORB	Aug-Oct | Late Aug-Sep*	Sep-Nov	Unranked	Unranked	
Blephilia ciliata	Ohio horse mint	6	6	5	P-FORB	May-Aug | Jun*	Jul-Sep	Unranked	Unranked	
Boltonia asteroides as vars. *latisquama* & *recognita* (S,Y)	false aster	4	5	-3	P-FORB	Jul-Oct | Sep*	Oct-Nov	Unranked	Unranked	
Boltonia decurrens *B. asteroides* var. *decurrens* (S)	decurrent false aster	8	4	-5	P-FORB	Aug-Oct (rarely to Dec)	Oct	S1, Endangered	S2, Threatened	Federally Threatened
Boltonia diffusa	doll's daisy	7	4	-3	P-FORB	Jul-Oct		Unranked	Unranked	
Bouteloua curtipendula as var. *curtipendula* (W)	side-oats grama	7	7	5	P-GRASS	Jul-Sep	Aug-Nov	Unranked	S3	
Brickellia eupatorioides var. *eupatorioides* including var. *corymbulosa* (Y) *Kuhnia eupatorioides* including var. *corymbulosa* (S)	false boneset	6	6	5	P-FORB	Jul-Oct		Unranked	Unranked	

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Buchnera americana	blue hearts	10	#	3	P-FORB	Jun-Sep	Oct	S4	S3, Threatened	
Calopogon oklahomensis included in *C. pulchellus* (S), included in *C. tuberosus* (L)	prairie grass pink	10		3	P-FORB	May-Jun		S2	S1, Endangered	acid soil
Calystegia sepium *Ca. sepium* var. *americanum* (M), *Convolvulus sepium* var. *sepium* (S)	hedge bindweed	1	1	0	P-FORB	May-Sep | Jul-Aug*		Unranked	Unranked	
Calystegia spithamaea included in *Convolvulus spithamaeus* (S)	low bindweed	9	#	5	P-FORB	May-Aug		Unranked	Unranked	
Camassia scilloides	wild hyacinth	6	7	3	P-FORB	Early Apr-mid May | Apr*	May-Jul	Unranked	S3	
Carex aggregata	glomerate sedge	4	4	5	P-SEDGE	May-Jun		Unranked	S2	
Carex annectens var. *xanthocarpa* *C. brachyglossa* (M)	yellow-fruited sedge	4	3	-3	P-SEDGE	May-Jul	Jun-Jul	Unranked	Unranked	
Carex austrina *C. muhlenbergii* var. *austrina* (M), *C. muhlenbergii* var. *australis* (S)	southern sedge	5	5	3	P-SEDGE	Apr-Jul		Unranked	Unranked	
Carex bicknellii as var. *bicknellii* (Y)	Bicknell's sedge	8	8	3	P-SEDGE	Apr-Jul	Jun-Aug	Unranked	S4	
Carex brevior	short-beaked sedge	4	4	0	P-SEDGE	May-Jun		Unranked	S4	
Carex bushii	Bush's sedge	4	4	3	P-SEDGE	May-Jul	Jun-Sep	Unranked	S4	
Carex buxbaumii	brown bog sedge		9	-5	P-SEDGE	Apr-Jun		S2	S3	groundwater seepage; this entry is from the original list but local botanists debate its place in prairies

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Carex caroliniana	Carolina sedge	7	7	-3	P-SEDGE	May-Jun		Unranked	S3	
Carex conjuncta	soft fox sedge	5	5	-3	P-SEDGE	May-Jun	Jun-Jul	Unranked	S3	
Carex crawei	Crawe's sedge	10		3	P-SEDGE	Apr-Jun	Jun-Jul	Unranked	S2	calcareous soil; this entry is from the original list but local botanists debate its place in prairies
Carex crinita	fringed sedge	7	8	-5	P-SEDGE	May-Jul	Jun-Jul	Unranked	S3	
Carex cristatella	crested sedge	4	3	-3	P-SEDGE	May-Jul	Jun-Sep	Unranked	S3	
Carex crus-corvi	raven's foot sedge	6	6	-5	P-SEDGE	May-Jul	Jun-Jul	Unranked	S3	
Carex festucacea	fescue sedge	5	6	0	P-SEDGE	May-Jul		Unranked	S3	
Carex frankii	Frank's sedge	2	4	0	P-SEDGE	May-Sep	Jul-Sep	Unranked	S3	
Carex granularis	meadow sedge	4	2	-3	P-SEDGE	Apr-Jun	Jul-Aug	Unranked	S4	
Carex gravida	heavy sedge	5	4	0	P-SEDGE	May-Jul	Jun-Jul	Unranked	S4	
Carex hirsutella *Carex complanata* var. *hirsuta* (S)	fuzzy wuzzy sedge	4	5	5	P-SEDGE	May-Jul	Jun-Jul	Unranked	S4	
Carex hyalinolepis	shoreline sedge	6	4	-5	P-SEDGE	Apr-Jul	Jun-Sep	Unranked	S3	
Carex laeviconica	smooth cone sedge		#	-5	P-SEDGE	Apr-Jul		Unranked	S3	
Carex leavenworthii	Leavenworth's sedge	3	2	5	P-SEDGE	Apr-Jun		Unranked	S3	
Carex lupulina	common hop sedge	6	5	-5	P-SEDGE	May-Sep	Jul-Oct	Unranked	S3	
Carex lurida	sallow sedge	6	7	-5	P-SEDGE	May-Sep	Jun-Aug	Unranked	S3	
Carex meadii	Mead's sedge	6	6	0	P-SEDGE	Mar-Jun	Apr-Jul	Unranked	S3	

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Carex mesochorea *C. cephalophora* var. *mesochorea* (S)	oval-headed sedge	3	?	3	P-SEDGE	Apr-Aug		Unranked	Unranked	
Carex molesta	troublesome sedge	3	2	0	P-SEDGE	May-Jul		Unranked	S1	
Carex muehlenbergii var. *enervis* *C. muhlenbergii* var. *enervis* (S)	sand sedge	8	5	5	P-SEDGE	May-Jul		Unranked	S3	*C. muehlenbergii* was on the original list, local botanists debate the place of var. *enervis* in prairies
Carex muehlenbergii var. *muehlenbergii*	sand sedge	5	5	5	P-SEDGE	May-Jul	Sep	Unranked	Unranked	
Carex normalis	larger straw sedge	4	4	-3	P-SEDGE	May-Jul	Jun	Unranked	S4	
Carex opaca as var. *bicknellii* (Y) included in *Carex bicknellii* (S)	prairie sedge	9		-3	P-SEDGE	Apr-Jul		Unranked	Endangered	
Carex pellita *C. lanuginosa* (S)	woolly sedge	5	4	-5	P-SEDGE	Apr-Jul	Jun	Unranked	S3	
Carex pensylvanica	Pennsylvania sedge	6	5	5	P-SEDGE	Apr-Jun		S3	S3	this entry is from the original list, but local botanists debate its place in prairies
Carex scoparia	pointed broom sedge	5	5	-3	P-SEDGE	May-Jul		Unranked	S3	
Carex shortiana	Short's sedge	4	4	-3	P-SEDGE	May-Jul | May*	Jun-Jul	Unranked	S4	

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Carex sparganioides	bur-reed sedge	5	4	0	P-SEDGE	Apr-Jul		Unranked	S3	this entry is from the original list, but local botanists debate its place in prairies
Carex squarrosa	squarrose sedge	6	5	-3	P-SEDGE	Apr-Sep	Jul-Oct	Unranked	S4	
Carex stipata	sawbeak sedge	4	2	-5	P-SEDGE	May-Jul	Jun-Aug	S3	S3	
Carex tribuloides var. *tribuloides* including *C. projecta* (S)	awl-fruited oval sedge	3	3	-3	P-SEDGE	May-Jun	Jun-Jul	Unranked	Unranked	
Carex typhina	cat-tail sedge	7	6	-5	P-SEDGE	Apr-Sep		Unranked	S3	
Carex umbellata	umbel-like sedge	6	6	5	P-SEDGE	Mar-May		Unranked	Unranked	
Carex vesicaria var. *monile*	inflated sedge	9	9	-5	P-SEDGE	May-Aug		S2	Unranked	
Carex vulpinoidea	fox sedge	3	3	-3	P-SEDGE	May-Jul | May*	Jul-Aug	Unranked	S5	
Castilleja coccinea	eastern paintbrush	6	8	0	A-FORB	Apr-Jul	May-Jul	Unranked	Unranked	hemiparasitic
Ceanothus americanus	New Jersey tea	7	8	5	SHRUB	May-Nov	Jul-Dec	S5	Unranked	
Cephalanthus occidentalis	buttonbush	3	4	-5	SHRUB	Jun-Aug	Sep-Oct	Unranked	Unranked	
Chamaecrista fasciculata as var. *fasciculata* (W) *Cassia fasciculata* (S)	partridge pea	2	1	3	A-FORB	Jul-Oct	Sep-Oct	Unranked	Unranked	
Chamaecrista nictitans as var. *nictitans* (W) *Cassia nictitans* (S)	wild sensitive plant	2	2	3	A-FORB	Jul-Sep		Unranked	Unranked	
Cicuta maculata as var. *maculata* (W) including var. *bolanderi* (Y)	water hemlock	5	4	-5	B-FORB	May-Sep		Unranked	Unranked	

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Cirsium altissimum	tall thistle	4	3	5	P-FORB	Jul-Oct | Sep*	Sep-Oct	Unranked	Unranked	
Cirsium discolor	field thistle	3	3	5	P-FORB	Jul-Nov | Aug-Oct*	Sep	Unranked	Unranked	
Cirsium hillii	prairie thistle		7	5	P-FORB			SU	S1	
Comandra umbellata as subsp. *umbellata* (Y) *C. richardsiana* (S)	false toadflax	7	6	5	P-FORB	May-Jul		Unranked	S3	hemiparasitic
Coreopsis lanceolata	sand coreopsis	5	5	5	P-FORB	Apr-Jul	May-Oct	Unranked	Unranked	
Coreopsis palmata	prairie coreopsis	7	6	5	P-FORB	May-Sep | Sep*	Jun-Nov	Unranked	Unranked	
Coreopsis tripteris	tall coreopsis	6	4	0	P-FORB	Jul-Sep | Late Jul-Sep*	Sep-Nov	Unranked	Unranked	
Cornus amomum subsp. *obliqua* *C. obliqua* (M,S) *Swida obliqua* (W)	pale dogwood	5	4	-3	SHRUB	May-Jul	Aug	Unranked	Unranked	
Cornus drummondii *Swida drummondii* (W)	rough-leaved dogwood	2	2	0	SHRUB	May-Jun | Jun*	Aug-Oct	Unranked	Unranked	
Cornus foemina subsp. *racemosa* *Swida racemosa* (W) *C. racemosa* (S)	gray dogwood	3	2	0	SHRUB	May-Jun		Unranked	Unranked	
Crotalaria sagittalis	rattlebox	5	3	5	A-FORB	Jun-Sep		Unranked	Unranked	
Croton capitatus var. *capitatus*	hogwort	0	0	5	A-FORB	Jun-Oct		Unranked	Unranked	
Croton glandulosus var. *septentrionalis*	sand croton	1	1	5	A-FORB	Jul-Oct		Unranked	Unranked	
Croton monanthogynus	prairie tea	2	2	5	A-FORB	May-Sep	Oct	Unranked	Unranked	
Cuphea viscosissima *C. petiolata* (S)	waxweed	4	4	0	A-FORB	Jul-Oct	Aug-Oct	Unranked	Unranked	
Cuscuta cuspidata	cusp dodder	5	5	-3	A-FORB	Jul-Oct	Oct-Nov	Unranked	Unranked	parasitic
Cuscuta glomerata	rope dodder	5	6	0	A-FORB	Jul-Sep		Unranked	Unranked	parasitic
Cuscuta pentagona	field dodder	5	5	5	A-FORB	Jun-Oct | Aug-Sep*		Unranked	Unranked	parasitic

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Cyperus echinatus *C. ovularis* (S)	ball sedge	3	2	0	P-SEDGE	Jun-Sep	Jul-Aug	Unranked	S3	
Cyperus lupulinus subsp. *lupulinus* *C. filiculmis* (S)	slender flatsedge	4	5	3	P-SEDGE	May-Oct		Unranked	Unranked	
Cyperus pseudovegetus *C. virens* (S)	green flatsedge		5	-3	P-SEDGE	Jun-Oct		Unranked	S3	
Cyperus schweinitzii	rough sand flatsedge	7	5	3	P-SEDGE	Jun-Sep		S3	S3	open sand
Cyperus strigosus	straw-colored flatsedge	1	0	-3	P-SEDGE	Jun-Oct	Jul	Unranked	S5	
Dalea candida *Petalostemon candidum* (S)	white prairie clover	8	9	5	P-FORB	Jun-Sep | Late Apr-Oct*	Aug-Oct	Unranked	Unranked	
Dalea purpurea *Petalostemon purpureum* (S)	purple prairie clover	8	8	5	P-FORB	May-Jul | Jul*	Jul-Nov	Unranked	Unranked	
Danthonia spicata	poverty oat grass	3	3	5	A-GRASS	Jul-Sep	Jun-Oct	Unranked	S4	
Delphinium carolinianum subsp. *carolinianum*	Carolina larkspur	7		5	P-FORB	May-Jun	Jun-Jul	Unranked	S1, Endangered	
Desmanthus illinoensis	Illinois bundleflower	3	4	3	P-FORB	Jun-Aug | Jul*	Aug-Oct	Unranked	Unranked	
Desmodium canadense	showy tick trefoil	4	5	3	P-FORB	Jun-Sep | Aug-Sep*		Unranked	Unranked	
Desmodium ciliare	hairy tick trefoil	5	7	5	P-FORB	Aug-Sep		Unranked	Unranked	
Desmodium glabellum included in *D. paniculatum* (L) included in *D. paniculatum* var. *dillenii* (S)	Dilleni's tick trefoil	3	3	5	P-FORB	Jul-Sep | Aug*	Oct	Unranked	Unranked	
Desmodium illinoense	Illinois tick trefoil	6	5	5	P-FORB	Jun-Sep	Oct	Unranked	Unranked	
Desmodium marilandicum	small-leaved tick trefoil	5	6	5	P-FORB	Jul-Sep		Unranked	Unranked	

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Desmodium obtusum *D. rigidum* (S)	stiff tick trefoil	6	5	5	P-FORB	Jul-Sep		Unranked	Unranked	
Desmodium sessilifolium	sessile-leaved tick trefoil	5	6	5	P-FORB	Jun-Sep	Oct	Unranked	Unranked	
Dichanthelium clandestinum *Panicum clandestinum* (S,Y)	deer tongue grass	4	4	-3	P-GRASS	May–Sep (vernal); Jul–Nov (autumnal) | Jun*		Unranked	S4	
Dichanthelium depauperatum *Panicum depauperatum* (S,Y)	starved panic grass	4	7	5	P-GRASS	May–Aug (vernal); Jul–Oct (autumnal)		Unranked	S3	
Dichanthelium lanuginosum *D. acuminatum* var. *implicatum* (M), including *Panicum lanuginosum* var. *fasciculatum* (S), included in *D. acuminatum* var. *acuminatum* (W), included in *P. acuminatum* var. *acuminatum* (Y)	wooly panic grass	2	2	3	P-GRASS	May–Sep (vernal); Jun–Nov (autumnal)		Unranked	Unranked	
Dichanthelium leibergii *Panicum leibergii* (S,Y)	prairie panic grass	10	7	3	P-GRASS	May–Aug (vernal); Jun–Sep (autumnal)		SU	S3	
Dichanthelium lindheimeri *Panicum lanuginosum* var. *lindheimeri* (S), *P. acuminatum* var. *lindheimeri* (Y), *D. acuminatum* var. *lindheimeri* (W)	Lindheimer's panic grass	3	4	0	P-GRASS	May–Sep (vernal); Jun–Nov (autumnal)		Unranked	Unranked	
Dichanthelium linearifolium var. *linearifolium* *Panicum linearifolium* var. *linearifolium* (S), included in *P. linearifolium* (Y)	slender-leaved panic grass	5	7	5	P-GRASS	May–Aug (vernal); Jul–Oct (autumnal)		Unranked	Unranked	

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Dichanthelium scribnerianum *Panicum oligosanthes* var. *scribnerianum* (S,Y), *P. oligosanthes* var. *helleri* (S)	Scribner's panic grass	4	3	3	P-GRASS	May–Jul (vernal); Jun–Sep (autumnal)		Unranked	S3	
Dichanthelium perlongum *Panicum perlongum* (S), included in *D. linearifolium* (W), included in *P. linearifolium* (Y)	long-stalked panic grass	9		5	P-GRASS	May–Aug (vernal); Jul–Oct (autumnal)		Unranked	S3	
Dichanthelium praecocius *Panicum praecocius* (S) included in *P. acuminatum* var. *acuminatum* (Y)	early-branching panic grass	9	7	5	P-GRASS	May–Sep (vernal); Jun–Nov (autumnal)		Unranked	S3	
Dichanthelium sphaerocarpon *Panicum sphaerocarpon* (S,Y)	round-fruited panic grass	5	7	3	P-GRASS	May–Sep (vernal); Jul–Nov (autumnal)		Unranked	Unranked	
Dichanthelium villosissimum *D. villosissimum* var. *villosissimum* (W), *P. villosissimum* var. *villosissimum* (S), included in *P. acuminatum* var. *acuminatum* (Y)	white-haired panic grass	6		5	P-GRASS	May–Sep (vernal); Jun–Nov (autumnal)		Unranked	S3	
Digitaria cognata *Leptoloma cognatum* (S)	fall witch grass	3	4	5	P-FORB	Jun-Oct		Unranked	Unranked	
Digitaria filiformis including var. *villosa* (Y)	slender crab grass	3	4	5	A-GRASS	Aug-Oct		Unranked	S2	
Diodia teres *Hexasepalum teres* (W)	buttonweed	2	2	5	A-FORB	Jun-Oct		Unranked	Unranked	
Diospyros virginiana	persimmon	3	2	0	TREE	May-Jun	Sep-Nov	Unranked	Unranked	
Draba brachycarpa *Abdra brachycarpa* (W)	whitlow grass	0	2	5	A-FORB	Feb-Apr		Unranked	Unranked	
Drymocallis arguta *Potentilla arguta* (S)	prairie cinquefoil	10	#	5	P-FORB	May-Aug | May-Jun*	Sep-Oct	Unranked	Unranked	
Echinacea pallida	pale purple coneflower	7	7	5	P-FORB	May-Jul | Jul*	Aug-Oct	Unranked	Unranked	

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Echinacea purpurea	purple coneflower	5	6	5	P-FORB	May-Oct | Jul-Sep*	Aug-Oct	Unranked	Unranked	
Eleocharis compressa var. *acutisquamata*	flat-stemmed spike rush	6	7	-3	P-SEDGE	May-Jul	Jul	Unranked	S3	
Eleocharis erythropoda *E. calva* (S)	bald spike rush	5	3	-5	P-SEDGE	May-Sep		Unranked	S4	
Eleocharis palustris including *E. macrostachya* (M), *E. smallii* &/or *E. macrostachya* (S)	marsh spike rush	5	5	-5	P-SEDGE	Apr-Sep	Jul	Unranked	Unranked	
Eleocharis verrucosa *E. tenuis* var. *verrucosa* (S)	slender spike rush	4	7	-3	P-SEDGE	May-Sep		Unranked	S3	
Elymus canadensis as var. *canadensis (W)*	Canada wild rye	5	4	3	P-GRASS	Jun-Oct | Aug*	Aug-Oct	Unranked	Unranked	
Elymus glabriflorus included in *E. virginicus* var. *glabriflorus* (S,Y,W)	southeastern wild rye	4	?	0	P-GRASS		Aug-Oct	Unranked	Unranked	
Elymus virginicus	Virginia wild rye	5	4	0	P-GRASS	May-Sep | Jul*	Jul-Oct	Unranked	S5	this entry is from the original list, but local botanists debate its place in prairies
Epilobium coloratum	cinnamon willow herb	6	3	-5	P-FORB	Jul-Oct	Oct	Unranked	Unranked	
Equisetum laevigatum	smooth scouring rush	4	4	-3	FERN	Mar-Jul		Unranked	S5	
Eragrostis spectabilis	purple love grass	3	3	5	P-GRASS	Jul-Oct		Unranked	S5	
Erechtites hieracifolius *E. hieracifolia* (S)	fireweed	1	2	5	A-FORB	Jul-Nov		Unranked	Unranked	
Erigeron annuus	annual fleabane	1	1	3	A-FORB	May-Nov | May-Oct*		Unranked	Unranked	

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Erigeron philadelphicus as var. *philadelphicus* (W)	marsh fleabane	3	3	0	B-FORB	Apr-Jun | May-Jun*	May-Jun	Unranked	Unranked	native weed
Erigeron strigosus	daisy fleabane	3	2	3	A-FORB	May-Sep | Jun-Sep*		Unranked	Unranked	
Eryngium yuccifolium as var. *yuccifolium* (W)	rattlesnake master	8	7	0	P-FORB	Jun-Aug | Jul-Aug*	Sep-Oct	Unranked	Unranked	
Erythronium mesochoreum *E. albidum* var. *mesochoreum* (S)	prairie trout lily	7		5	P-FORB	Mar-May		Unranked	S1	
Eupatorium altissimum	tall boneset	3	2	5	P-FORB	Aug-Oct | Late Aug*	Oct-Nov	Unranked	Unranked	
Eupatorium perfoliatum	common boneset	3	4	-3	P-FORB	Jul-Oct | Late Aug-Sep*	Oct	Unranked	Unranked	
Eupatorium serotinum	late boneset	1	1	0	P-FORB	Aug-Oct | Sep*	Sep	Unranked	Unranked	
Euphorbia corollata	flowering spurge	3	3	5	P-FORB	May-Oct | Aug*	Sep-Oct	Unranked	Unranked	
Euthamia graminifolia *Solidago graminifolia* vars. *media* & *nuttallii* (S)	hairy grass-leaved goldenrod	3	3	0	P-FORB	Aug-Oct | Late Aug-Sep*	Oct-Nov	Unranked	Unranked	
Euthamia gymnospermoides *Solidago gymnospermoides* (S)	viscid grass-leaved goldenrod	4	5	3	P-FORB	Aug-Oct | Aug-Oct*	Oct-Nov	Unranked	Unranked	
Festuca paradoxa	cluster fescue	6	6	0	P-GRASS	May-Jul	Jul	Unranked	S3, Threatened	
Fimbristylis puberula *F. caroliniana* (S)	glade fimbry	7	9	3	P-SEDGE	May-Jul	Jun-Jul	Unranked	Unranked	
Fragaria virginiana	wild strawberry	3	2	3	P-FORB	Apr-May		Unranked	Unranked	
Galium obtusum as var. *obtusum* (W)	wild madder	5	5	-3	P-FORB	May-Jul		Unranked	Unranked	
Galium pilosum	hairy bedstraw	6	7	5	P-FORB	Jun-Aug		S5	Unranked	
Galium tinctorium	stiff bedstraw	6	6	-5	P-FORB	May-Sep		Unranked	Unranked	

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Gamochaeta purpurea *Gnaphalium purpureum* (S)	early cudweed	3	2	5	A-FORB	Apr-Jun		Unranked	Unranked	
Gaura longiflora *G. biennis* (S), *Oenothera filiformis* (Y,W), including *G. longifolia* (L,M)	biennial gaura	1	5	5	B-FORB	Jun-Oct	Oct	Unranked	Unranked	
Gentiana alba *G. flavida* (S)	yellowish gentain	8	9	3	P-FORB	Aug-Oct | Sep*	Oct-Nov	Unranked	Unranked	
Gentiana andrewsii var. *andrewsii* *G. andrewsii* (S)	closed gentian	10	7	-3	P-FORB	Aug-Oct	Oct-Nov	S1	Unranked	
Gentiana andrewsii var. *dakotica* *G. clausa* (S)	closed gentian	9	7	-3	P-FORB	Aug-Oct		Unranked	Unranked	
Gentiana puberulenta *G. puberula* (S)	downy gentian	9	9	5	P-FORB	Sep-Nov	Oct-Dec	Unranked	Unranked	
Geum canadense	white avens	2	2	3	P-FORB	May-Oct | Jun-Oct*	Oct	Unranked	Unranked	
Glandularia canadensis	rose vervain	5	7	5	P-FORB	Mar-Nov	Oct	Unranked	Unranked	
Glyceria striata as var. *striata* (W)	fowl manna grass	4	4	-5	P-GRASS	May-Jul		Unranked	S5	
Hedeoma hispida	rough pennyroyal	3	2	5	A-FORB	May-Aug		Unranked	Unranked	
Hedeoma pulegioides	American pennyroyal	4	4	5	A-FORB	Jul-Sep		Unranked	Unranked	
Helenium autumnale	sneezeweed	5	3	-3	P-FORB	Aug-Nov | Late Aug-Nov*	Sep-Oct	Unranked	Unranked	
Helenium flexuosum	purple-head sneezeweed	3	4	0	P-FORB	Jun-Nov | Sep*	Aug-Nov	Unranked	Unranked	
Helianthemum bicknellii *Crochanthemum bicknelli* (W)	hoary rockrose	6	7	5	P-FORB	Apr-Jul		Unranked	Unranked	
Helianthus grosseserratus	sawtooth sunflower	4	2	0	P-FORB	Jul-Oct | Jun-Sep*	Oct	Unranked	Unranked	

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Helianthus hirsutus	oblong sunflower	4	5	5	P-FORB	Jul-Oct | Aug*	Aug-Nov	Unranked	Unranked	
Helianthus mollis	downy sunflower	6	7	5	P-FORB	Jul-Oct | Sep*	Aug-Nov	Unranked	Unranked	
Helianthus occidentalis as subsp. *occidentalis* (W)	western sunflower	5	7	5	P-FORB	Jul-Sep	Aug-Nov	Unranked	Unranked	
Helianthus pauciflorus subsp. *pauciflorus* *H. laetiflorus* var. *rigidus* (S)	showy sunflower	5	6	5	P-FORB	Aug-Oct		Unranked	Unranked	
Helianthus tuberosus	Jerusalem artichoke	3	3	3	P-FORB	Aug-Oct | Sep*	Oct	Unranked	Unranked	
Heliopsis helianthoides	false sunflower	5	4	0	P-FORB	May-Sep | Late Jun-Nov*	Aug-Nov	Unranked	Unranked	
Heliotropium tenellum	glade heliotrope	8	#	5	A-FORB	Jul-Oct	Oct	Unranked	S1, Endangered	limestone and dolomite
Heuchera richardsonii	prairie alum root	6	7	3	P-FORB	Apr-Jun	May-Sep	Unranked	Unranked	
Hieracium longipilum	long-bearded hawkweed	6	6	5	P-FORB	May-Oct	Sep	Unranked	Unranked	
Houstonia caerulea	bluets		7	3	A-FORB	Apr-May		Unranked	Unranked	this entry is from the original list, but local botanists debate its place in prairies

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Houstonia longifolia var. *tenuifolia* *Houstonia tenuifolia* (W)	long-leaved bluets	5	7	5	P-FORB	Apr-Jul (rarely Oct)		Unranked	Unranked	this entry is from the original list, but local botanists debate its place in prairies
Houstonia nigricans as var. *nigricans* (W)	narrow-leaved bluets	5	7	5	P-FORB	May-Oct		Unranked	Unranked	
Houstonia pusilla including *H. minima* (S)	least bluets	3	3	3	A-FORB	Mar-Apr		Unranked	Unranked	
Hypericum drummondii	nits and lice	4	6	3	A-FORB	Jun-Sep		Unranked	Unranked	sterile acid sites
Hypericum gentianoides	orange grass	5	6	5	A-FORB	Jun-Sep	Aug	Unranked	Unranked	sterile acid sites
Hypericum mutilum as var. *mutilum* (W)	weak St. John's wort	4	5	-3	P-FORB	Jul-Oct | Sep-Oct*	Oct	Unranked	Unranked	
Hypericum punctatum	spotted St. John's wort	3	3	0	P-FORB	Jun-Sep | Jun-Jul*	Sep-Oct	Unranked	Unranked	
Hypericum sphaerocarpum	round-fruited St. John's wort	5	5	3	P-FORB	May-Sep	Sep-Nov	Unranked	Unranked	
Hypoxis hirsuta	yellow star grass	5	6	0	P-FORB	Apr-May (rarely reblooming through the summer until Oct)	May	Unranked	S3	
Impatiens capensis	orange jewelweed	3	2	-3	A-FORB	Jun-Sep | Jun-Oct*	Sep-Nov	Unranked	Unranked	
Ionactis linariifolius *I. linearifolia* (W) *Aster linariifolius* (S)	flax-leaved aster	9	9	5	P-FORB	Aug-Nov		Unranked	Unranked	

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Iris virginica var. *shrevei* *I. shrevei* (M,W)	blue flag	6	5	-5	P-FORB	May-Jul | May-Jun*	Jul-Nov	Unranked	Unranked	
Iva annua *I. ciliata* (S)	marsh elder	1	0	0	A-FORB	Jul-Oct		Unranked	Unranked	native weed
Juncus acuminatus	sharp-fruited rush	4	4	-5	P-FORB	May-Aug	Oct	Unranked	S4	
Juncus anthelatus *J. tenuis* f. *anthelatus* (S)	path rush	2	0	0	P-FORB	Jul-Sep	Sep	Unranked	Unranked	
Juncus biflorus	two-flowered rush	5	5	-3	P-FORB	May-Sep	Jul-Sep	Unranked	S4	
Juncus brachycarpus	short-fruited rush	7	5	-3	P-FORB	May-Sep	Jul	Unranked	S3	
Juncus dudleyi	Dudley's rush	6	4	-3	P-FORB	May-Sep	Jun-Oct	Unranked	S3	
Juncus effusus subsp. *solutus*	common rush	4	4	-5	P-FORB	May-Sep	Jun-Nov	Unranked	Unranked	
Juncus interior	inland rush	5	3	3	P-FORB	May-Aug	Jul	Unranked	S5	
Juncus marginatus	grass-leaved rush	4	5	-3	P-FORB	May-Sep	Oct	Unranked	S3	
Juncus nodatus	stout rush	6	6	-5	P-FORB	May-Aug	Jun-Jul	Unranked	S3	
Juncus secundus	secund rush	5		3	P-FORB	May-Oct		Unranked	S1	
Juncus tenuis	path rush	0	0	0	P-FORB	May-Sep	Jun-Aug	Unranked	S5	trampled areas
Juncus torreyi	Torrey's rush	4	3	-3	P-FORB	Jul-Oct	Oct	Unranked	S5	
Koeleria macrantha *K. cristata* (S)	june grass	6	7	5	P-GRASS	May-Jul	Jun-Oct	Unranked	S3	
Krigia biflora as subsp. *biflora* (W)	orange false dandelion	5	5	3	P-FORB	May-Aug	May	Unranked	Unranked	
Krigia dandelion	potato dandelion	6	6	3	P-FORB	Apr-Jun		Unranked	Unranked	
Krigia virginica	dwarf dandelion	3	4	5	A-FORB	Apr-Aug		Unranked	Unranked	
Lactuca canadensis	wild lettuce	3	1	3	B-FORB	Jul-Sep | Aug*	Sep-Oct	Unranked	Unranked	

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Lechea mucronata *L. villosa* (S)	hairy pinweed	5	7	5	P-FORB	Jul-Nov	Sep-Oct	Unranked	Unranked	sterile acid sites
Lechea tenuifolia	slender-leaved pinweed	4	6	5	P-FORB	Jun-Nov	Oct	Unranked	Unranked	sterile acid sites
Lespedeza capitata	round-headed bush clover	6	4	3	P-FORB	Jul-Oct | Jun*	Sep-Nov	Unranked	Unranked	
Lespedeza procumbens	trailing bush clover	4	5	5	P-FORB	Jul-Oct		Unranked	Unranked	
Lespedeza stuevei	Stueve's bush clover	7	6	5	P-FORB	Jul-Sep		Unranked	Unranked	
Lespedeza violacea *L. intermedia* (S)	wandlike bush clover	6	5	5	P-FORB	Jun-Oct	Oct	Unranked	Unranked	mesic
Lespedeza virginica	slender bush clover	5	5	5	P-FORB	May-Sep	Sep-Nov	Unranked	Unranked	
Liatris aspera	rough blazing star	6	7	5	P-FORB	Aug-Nov | Jul*	Aug-Sep	Unranked	Unranked	
Liatris cylindracea	cylindrical blazing star	7	8	5	P-FORB	Jul-Sep	Sep-Nov	Unranked	Unranked	
Liatris pycnostachya as var. *pycnostachya* (W)	prairie blazing star	6	6	0	P-FORB	Jul-Oct | Late Jul-Aug*	Sep-Nov	Unranked	Unranked	
Liatris squarrosa var. *hirsuta*	hairy blazing star	6	7	5	P-FORB	Jul-Sep	Oct	Unranked	Unranked	
Liatris squarrosa var. *squarrosa* including var. *glabrata* (Y)	scaly blazing star		7	5	P-FORB	Jul-Sep	Sep-Nov	Unranked	Unranked	Not known to be in St. Louis region and unknown in Illinois.
Lilium michiganense	Michigan lily	7	6	-3	P-FORB	Jun-Jul		Unranked	S5	
Lindernia dubia var. *dubia* *Lindernia dubia* (S,Y)	slender false pimpernel	4	5	-5	A-FORB	Jun-Oct | Jul*		Unranked	Unranked	
Linum medium var. *texanum* *Linum curtissii* (W)	small yellow flax	5	7	3	P-FORB	May-Sep		Unranked	Unranked	

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Linum sulcatum	grooved yellow flax	5	8	5	A-FORB	May-Oct	Sep-Oct	Unranked	Unranked	
Lippia lanceolata *Phyla lanceolata* (W)	fog fruit	3	1	-5	P-FORB	May-Sep | Late Jun-Oct*		Unranked	Unranked	
Lithospermum canescens	hoary puccoon	6	6	5	P-FORB	Mar-Jun	Jun-Sep	Unranked	Unranked	
Lithospermum caroliniense *L. croceum* (M)	hairy puccoon	7	7	5	P-FORB	Apr-Jun		Unranked	Unranked	
Lithospermum incisum	fringed puccoon	7	8	5	P-FORB	Apr-Jun		Unranked	Unranked	
Lobelia cardinalis	cardinal flower	6	6	-3	P-FORB	Jul-Oct | Late Aug-Sep*	Sep-Nov	Unranked	Unranked	
Lobelia inflata	inflated lobelia	3	4	3	A-FORB	Jun-Oct | Late Jul-Aug*	Aug-Oct	Unranked	Unranked	
Lobelia siphilitica	great blue lobelia	4	4	-5	P-FORB	Aug-Oct | Late Aug-Oct*	Sep-Nov	Unranked	Unranked	
Lobelia spicata including var. *leptostachys* (Y)	pale spiked lobelia	5	4	0	P-FORB	Apr-Aug	Aug-Nov	Unranked	Unranked	
Ludwigia alternifolia	seedbox	4	5	-5	P-FORB	Jun-Aug | Late Jun-Sep*	Sep-Oct	Unranked	Unranked	
Ludwigia palustris	marsh purslane	4	4	-5	P-FORB	Jun-Sep		Unranked	Unranked	
Ludwigia polycarpa	false loosestrife	6	5	-5	P-FORB	Jun-Sep		Unranked	Unranked	
Luzula campestris var. *bulbosa* included in *L. bulbosa* (S,W)	wood rush	4	5	3	P-FORB	Apr-Jun	Oct	Unranked	Unranked	
Lycopus americanus	common water horehound	4	3	-5	P-FORB	Jun-Oct | Late Aug-Sep*	Oct-Nov	Unranked	Unranked	

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Lysimachia ciliata *Steironema ciliatum* (W)	fringed loosestrife	5	4	-3	P-FORB	May-Sep	Oct	Unranked	Unranked	
Lysimachia hybrida *Steironema hybridum* (W)	hybrid loosestrife	7		-5	P-FORB	May-Sep		Unranked	Unranked	
Lysimachia lanceolata *Steironema lanceolatum* (W)	lance-leaved loosestrife	4	6	0	P-FORB	May-Aug	Sep	Unranked	Unranked	
Lythrum alatum including var. *lanceolatum* (Y)	winged loosestrife	6	5	-5	P-FORB	Jun-Sep | Jun-Aug*	Aug-Nov	Unranked	Unranked	
Malus ioensis	prairie crabapple	3	3	5	TREE	Apr-May		Unranked	Unranked	
Malvastrum angustum *M. hispidum* (W) *Sphaeralcea angusta* (S)	false mallow	6		5	A-FORB	Jul-Sep		S3	S1	open rocky sites
Melanthium virginicum	bunch flower	9	#	-3	P-FORB	Jun-Aug	Aug-Oct	Unranked	S2, Endangered	
Melica nitens	tall melic grass	6	7	5	P-GRASS	Apr-Jul	May-Oct	Unranked	S3	
Mentzelia oligosperma	glade stickleaf	6	#	5	P-FORB	Jun-Aug		Unranked	Unranked	dry limestone sites
Mimosa quadrivalvis var. *nuttallii* *Schrankia uncinata* (S), *M. nuttallii* (W)	sensitive briar	6		5	P-FORB	May-Oct	Jun-Dec	Unranked	Unranked	dry-mesic to dry acid sites
Mimulus alatus	winged monkey flower	5	6	-5	P-FORB	Jun-Sep	Oct	Unranked	Unranked	
Minuartia patula *Arenaria patula* var. *patula* (S) *Mononeuria patula* (W)	slender sandwort	7	8	5	A-FORB	Mar-May	May	S3	Unranked	dry calcareous soil
Mirabilis albida	pale umbrellawort	5		5	P-FORB	May-Oct	Aug	Unranked	Unranked	
Monarda fistulosa as var. *mollis* (W)	wild bergamot	4	4	3	P-FORB	May-Aug | Jul-Aug*	Jul-Oct	Unranked	Unranked	

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Muhlenbergia cuspidata	prairie satin grass	10	#	5	P-GRASS	Jul-Oct		SU	S2	thin soil over limestone
Muhlenbergia glabrifloris *M. glabriflora* (S)	smooth satin grass	7	7	5	P-GRASS	Aug-Oct		SU	S3	
Muhlenbergia mexicana	leafy satin grass	6	4	0	P-GRASS	Aug-Oct		Unranked	S3	
Muhlenbergia sobolifera	rock satin grass	4	5	5	P-GRASS	Jul-Oct	Oct	Unranked	S3	
Myosotis verna *Myosotis virginica* var. *virginica* (S)	spring forget-me-not	2	3	3	A-FORB	Apr-Jun		Unranked	Unranked	
Nothoscordum bivalve	false garlic	4	5	3	P-FORB	Mar-May; Oct-Nov | Late Apr*	May	Unranked	S4	
Oenothera biennis	common evening primrose	0	1	3	B-FORB	Jun-Oct | Aug-Sep*	Sep-Jan	Unranked	Unranked	
Oenothera laciniata	ragged evening primrose	1	2	3	A-FORB	May-Oct		Unranked	Unranked	
Oenothera linifolia	thread-leaved sundrops	4		5	A-FORB	May-Jul		Unranked	Unranked	sterile acid sites
Oenothera macrocarpa *O. missouriensis* (S) as var. *macrocarpa* (W)	Missouri primrose	7		5	P-FORB	May-Aug | Aug-Oct*	Jul-Sep	Unranked	S1	
Oenothera pilosella	prairie sundrops	6	6	0	P-FORB	May-Jul	Jul-Sep	Unranked	Unranked	
Oligoneuron rigidum *Solidago rigida* (S,Y)	stiff goldenrod	5	4	3	P-FORB	Aug-Oct | Late Sep*	Oct-Nov	Unranked	Unranked	

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Onosmodium molle subsp. *hispidissimum* *Lithospermum parviflorum* (W)	marbleseed	4	5	5	P-FORB	May-Jul	Sep-Nov	Unranked	Unranked	this entry is from the original list, but local botanists debate its place in prairies
Onosmodium molle subsp. *occidentale* *Lithospermum occidentale* (W)	false gromwell	4	8	5	P-FORB	Jun-Aug		Unranked	Unranked	this entry is from the original list, but local botanists debate its place in prairies
Onosmodium molle subsp. *subsetosum* *O. subsetosum* (S) *Lithospermum molle* (W)	Ozark false gromwell	4	#	5	P-FORB	May-Jul		Unranked	Unranked	
Opuntia humifusa *O. compressa* (S)	eastern prickly pear	4	5	5	SHRUB	May-Jul	Oct-Nov	Unranked	Unranked	xeric exposures
Orbexilum onobrychis *Psoralea onobrychis* (S)	French grass	7	6	5	P-FORB	May-Jul	Jul-Oct	Unranked	Unranked	
Orbexilum pedunculatum *Psoralea psoralioides* var. *eglandulosa* (S)	Sampson's snakeroot	6	6	3	P-FORB	May-Jul	Jul-Oct	Unranked	Unranked	
Orobanche uniflora *Aphyllon uniflorum* (W)	one-flowered cancer-root	7	8	3	P-FORB	Apr-Jun		Unranked	Unranked	
Oxalis dillenii *O. stricta (M)*	yellow wood sorrel	0	0	3	P-FORB	May-Nov | May-Oct*		Unranked	Unranked	
Oxalis violacea	violet wood sorrel	5	5	5	P-FORB	Apr-Jul; Sep-Nov	May-Oct	Unranked	Unranked	
Oxypolis rigidior	cowbane	7		-5	P-FORB	Jul-Sep | Late Jul-Nov*	Oct-Nov	Unranked	Unranked	

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Packera aurea *Senecio aureus* including vars. *gracilis* & *intercursus* (S)	common golden ragwort	6	4	-3	P-FORB	Apr-Jun		Unranked	Unranked	groundwater seepage
Packera paupercula *Senecio pauperculus* var. *balsamitae* (S)	balsam ragwort	6	3	0	P-FORB	Apr-Aug		Unranked	Unranked	
Packera plattensis *Senecio plattensis* (S)	prairie ragwort	6	6	3	P-FORB	Apr-Jun	May	Unranked	Unranked	
Panicum anceps *Coleataenia anceps* subsp. *anceps* (W)	beaked panic grass	3	3	0	P-GRASS	Jun-Oct	Sep-Oct	Unranked	S3	
Panicum capillare	old witch grass	0	0	0	A-GRASS	Jul-Oct		Unranked	S5	
Panicum flexile	wiry panic grass	3	7	3	A-GRASS	Jul-Oct		Unranked	S3	
Panicum rigidulum *P. agrostoides* (S) *Coleataenia rigidula* var. *rigidula* (W)	munro grass	3	6	-3	P-GRASS	Jul-Oct		S4	Unranked	
Panicum virgatum as var. *virgatum* (W)	switch grass	4	4	0	P-GRASS	Jun-Sep | Jun*	Sep-Nov	Unranked	S5	
Parthenium integrifolium *P. integrifolium* var. *integrifolium* (Y,W)	wild quinine	6	8	5	P-FORB	May-Oct	Jul-Nov	Unranked	Unranked	
Paspalum laeve var. *circulare*	smooth lens grass	3	2	0	P-GRASS	Jul-Oct		Unranked	S3	
Paspalum setaceum var. *ciliatifolium* *P. ciliatifolium* var. *ciliatifolium* (S)	hairy lens grass	3	3	3	P-GRASS	May-Oct		Unranked	Unranked	
Paspalum setaceum var. *muhlenbergii* *P. ciliatifolium* var. *muhlenbergii* (S)	hairy lens grass	3	3	3	P-GRASS	May-Oct		Unranked	Unranked	
Pedicularis canadensis	lousewort	5	7	3	P-FORB	Apr-May | Late Apr-May*	May-Oct	Unranked	Unranked	hemiparisitic
Pediomelum tenuiflorum *Psoralea tenuiflora* (S)	scurfy pea	8	8	5	P-FORB	Apr-Sep		Unranked	Unranked	

Scientific Name	Common Name	MO	IL	Wet	Physiog	Flowering Time Frame	Seed Collection Time Frame	Missouri State-Listing	Illinois State-Listing	Comments
Penstemon digitalis	foxglove beard tongue	3	4	0	P-FORB	Apr-Jun | Late May-Jul*	Jul-Oct	S5	Unranked	
Penstemon pallidus	pale beard tongue	5	6	5	P-FORB	Apr-Jun	Jul-Oct	Unranked	S1	
Penstemon tubaeflorus	funnel-form beard tongue	6	5	5	P-FORB	May-Jun	Jul-Nov	Unranked	Unranked, Endangered	
Persicaria hydropiperoides *Polygonum hydropiperoides* including var. *opelousanum* (S)	mild water pepper	4	4	-5	P-FORB	Jun-Nov		Unranked	S4	
Persicaria punctata *Polygonum punctatum* (S)	dotted smartweed	3	3	-5	P-FORB	Jul-Nov		Unranked	S5	
Phemeranthus calycinus *Talinum calycinum* (S)	fame flower	8		5	P-FORB	May-Oct	Jun-Nov	Unranked	S1, Endangered	open rocky sites; this entry is from the original list but local botanists debate its place in prairies
Phlox glaberrima subsp. *interior*	marsh phlox	8	6	-3	P-FORB	May-Jul	May-Jun	Unranked	Unranked	
Phlox pilosa subsp. *fulgida*	prairie phlox	6	7	3	P-FORB	May-Jun		Unranked	Unranked	
Phlox pilosa subsp. *ozarkana*	prairie phlox	6	7	3	P-FORB	Apr-May		Unranked	Unranked	
Phlox pilosa subsp. *pilosa*	prairie phlox	6	7	3	P-FORB	Apr-Jun	Jun	Unranked	Unranked	
Physalis heterophylla	clammy ground cherry	3	2	5	P-FORB	May-Sep		Unranked	Unranked	
Physalis virginiana	lance-leaved ground cherry	3	3	5	P-FORB	Apr-Oct	Sep	Unranked	Unranked	
Physostegia angustifolia	narrow-leaved dragonhead	6	6	-3	P-FORB	Jun-Sep	Jul-Oct	Unranked	Unranked	
Physostegia virginiana subsp. *praemorsa* *P. formisior* (S) *P. virginiana* var. *speciosa* (S)	false dragonhead	7	6	-3	P-FORB	May-Oct		Unranked	Unranked	

Scientific Name	Common Name	MO	IL	Wet	Physiog	Flowering Time Frame	Seed Collection Time Frame	Missouri State-Listing	Illinois State-Listing	Comments
Physostegia virginiana subsp. *virginiana*	false dragonhead	5	6	-3	P-FORB	May-Oct	Sep-Nov	Unranked	Unranked	
Plantago elongata *P. pusilla* including var. *major* (S)	slender plantain	1	3	3	A-FORB	Apr-Jun		Unranked	Unranked	
Plantago virginica	dwarf plantain	1	3	5	A-FORB	Apr-Jun		Unranked	Unranked	
Platanthera flava var. *herbiola* *Habenaria flava* var. *herbiola* (S)	tubercled orchid	10	#	-3	P-FORB	May-Sep		S2	S1	
Platanthera lacera *Habenaria lacera* (S)	ragged fringed orchid	6	9	-3	P-FORB	Jun-Jul		Unranked	S2	
Platanthera leucophaea *Habenaria leucophaea* (S)	eastern prairie white fringed orchid		#	-3	P-FORB	Jun-Jul		S1, Endangered	S1, Endangered	federally threatened
Polygala sanguinea	field milkwort	4	5	3	A-FORB	May-Oct	Aug	Unranked	Unranked	
Polygala senega	seneca snakeroot	6	7	3	P-FORB	May-Jul		Unranked	Unranked	
Polygala verticillata including var. *ambigua* (Y) as var. *isocycla* (W)	whorled milkwort	4	9	5	A-FORB	May-Oct		Unranked	Unranked	
Polygonatum biflorum var. *commutatum* *P. commutatum* (M), *P. canaliculatum* (S), *P. biflorum* (S)	smooth Solomon's seal	4	4	3	P-FORB	May-Jun	Jul-Oct	Unranked	S5	
Polygonum ramosissimum var. *ramosissimum*	bushy knotweed	5	3	3	A-FORB	May-Oct		Unranked	Unranked	
Polygonum tenue	slender knotweed	6	5	5	A-FORB	Jul-Oct		Unranked	S3	sterile acid soil
Polytaenia nuttallii	prairie parsley	8	8	5	P-FORB	Apr-Jun	Jun-Oct	Unranked	Unranked	
Potentilla norvegica	rough cinquefoil	0	0	3	A-FORB	May-Oct		Unranked	Unranked	
Potentilla simplex	common cinquefoil	3	3	3	P-FORB	Apr-Jun | May*		Unranked	Unranked	
Prenanthes aspera *Nabalus asper* (W)	rough white lettuce	7	8	5	P-FORB	Aug-Oct	Oct-Nov	Unranked	Unranked	

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Primula meadia *Dodecatheon meadia* (S)	shooting star	7	6	3	P-FORB	Apr-Jun	May-Nov	Unranked	Unranked	
Prunella vulgaris var. *lanceolata* *P. vulgaris* var. *elongata* (M)	self-heal	1	1	3	P-FORB	May-Sep | Aug-Oct*	Aug	Unranked	Unranked	
Prunus americana	wild plum	4	3	5	TREE	Apr-May		Unranked	Unranked	
Prunus angustifolia	chickasaw plum	5	3	5	SHRUB	Mar-Apr		Unranked	Unranked	
Prunus hortulana	hortulan plum	3	3	5	TREE	Mar-May		Unranked	Unranked	
Prunus munsoniana included in *P. hortulana* (Y)	wild goose plum	5	6	5	TREE	Mar-May	Oct	Unranked	Unranked	
Pseudognaphalium obtusifolium *Gnaphalium obtusifolium* (S)	old-field balsam	2	2	5	A-FORB	Jul-Nov	Oct	Unranked	Unranked	
Ptelea trifoliata as var. *trifoliata* (W)	hop tree	5	4	3	SHRUB	Apr-Jun	Aug-Oct	Unranked	Unranked	this entry is from the original list, but local botanists debate its place in prairies
Ptilimnium nuttallii	Nuttall's mock bishop weed	4	7	-3	A-FORB	Jun-Aug		Unranked	S1, Endangered	
Pycnanthemum pilosum	hairy mountain mint	5	6	3	P-FORB	Jul-Sep | Jul-Nov*	Sep-Nov	Unranked	Unranked	
Pycnanthemum tenuifolium	slender mountain mint	4	4	0	P-FORB	Jun-Sep | Jun-Oct*	Jul-Nov	Unranked	Unranked	
Pycnanthemum virginianum	common mountain mint	6	5	-3	P-FORB	Jul-Oct | Aug-Oct*	Sep-Nov	Unranked	Unranked	
Quercus macrocarpa as var. *macrocarpa* (W)	bur oak	4	5	3	TREE	Apr-May		Unranked	S5	
Quercus marilandica as var. *marilandica* (W)	blackjack oak	4	6	5	TREE	Apr-May		Unranked	S4	

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Quercus stellata as var. *stellata* (Y)	post oak	4	5	5	TREE	Apr-May		Unranked	S4	
Ranunculus fascicularis	early buttercup	5	5	3	P-FORB	Feb-May	Oct	Unranked	S5	
Ranunculus laxicaulis	water plantain spearwort	7	6	-5	A-FORB	Apr-Sep		Unranked	S4	
Ratibida pinnata	grey-headed coneflower	4	4	5	P-FORB	May-Sep | Late Jun-Aug*	Aug-Oct	Unranked	Unranked	
Rhamnus lanceolata *Endotropis lanceolata* (W)	lance-leaved buckthorn	5	7	0	SHRUB	Apr-Jun		Unranked	S5	
Rhus copallinum var. *latifolia* *R. copallina* var. *latifolia* (S)	shining sumac	2	3	5	SHRUB	Jun-Jul	Sep-Oct	Unranked	Unranked	
Rhus glabra	smooth sumac	1	1	5	SHRUB	May-Jun	Sep-Nov	Unranked	Unranked	
Rosa carolina subsp. *carolina*	pasture rose	4	4	3	SHRUB	May-Jul | Late Jun*	Sep-Nov	Unranked	Unranked	
Rosa carolina subsp. *subserrulata*	pasture rose	4	4	3	SHRUB	May-Jul | Late Jun*		Unranked	Unranked	
Rosa setigera	prairie rose	4	5	3	SHRUB	May-Jul | Jun*	Sep-Nov	Unranked	Unranked	
Rubus ablatus included in *R. ostryifolius* (S)	plains blackberry	2	?	3	SHRUB	May		Unranked	Unranked	
Rubus aboriginum included in *R. enslenii* (S)	garden dewberry	4	7	5	SHRUB	Apr-Jun		Unranked	Unranked	
Rubus allegheniensis	common blackberry	4	2	3	SHRUB	Apr-Jun | May-Jun*		Unranked	Unranked	
Rubus alumnus *R. orarius* (S)	old field blackberry	4		3	SHRUB	May-Jun		Unranked	Unranked	
Rubus argutus	sawtooth blackberry	1		0	SHRUB	May-Jun		Unranked	Unranked	
Rubus curtipes included in *Rubus flagellaris* (S)	short-stalked dewberry	3	2	5	SHRUB	Apr-May		Unranked	Unranked	

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Rubus enslenii	one-flowered dewberry	5	7	3	SHRUB	Apr-May		Unranked	Unranked	
Rubus flagellaris	common dewberry	3	2	3	SHRUB	May-Jun | May-Oct*		Unranked	Unranked	
Rubus frondosus including *R. pensilvanicus* (S,W)	leafy-bracted blackberry	2	2	5	SHRUB	May-Jun		Unranked	Unranked	
Rubus missouricus	Missouri dewberry	7		3	SHRUB	May-Jun		S4	Unranked	
Rubus occidentalis	black raspberry	3	2	5	SHRUB	Apr-Jun		Unranked	Unranked	
Rudbeckia hirta as var. *pulcherrima* (Y,W)	black-eyed susan	1	2	3	P-FORB	May-Jul | Jun-Jul*	Jul-Nov	Unranked	Unranked	calcareous soil
Rudbeckia missouriensis	Missouri black-eyed susan	6	#	3	P-FORB	Jun-Oct | Jul*	Sep-Nov	Unranked	S1, Threatened	
Rudbeckia subtomentosa	sweet black-eyed susan	5	5	3	P-FORB	Jul-Oct*	Sep-Oct	Unranked	Unranked	
Rudbeckia triloba as var. *triloba* (W)	brown-eyed susan	3	3	3	B-FORB	Jul-Nov | Jun-Oct*	Sep-Nov	Unranked	Unranked	
Ruellia humilis	hairy ruellia	3	3	3	P-FORB	May-Oct | Jun*	Aug-Nov	Unranked	Unranked	
Ruellia strepens	smooth ruellia	3	6	0	P-FORB	May-Oct		Unranked	Unranked	
Sabatia angularis	rose gentian	4	3	0	B-FORB	Jun-Sep	Sep-Dec	Unranked	Unranked	
Sabatia campestris	prairie rose gentian	4	8	3	B-FORB	Jul-Sep		Unranked	S1, Endangered	
Salix eriocephala	Missouri willow	5	8	-3	TREE	Apr-May		Unranked	Unranked	
Salix humilis including var. *tristis* (Y)	prairie willow	7	5	3	SHRUB	Mar-May	Apr	Unranked	S3	
Sanicula canadensis as var. *canadensis* (W)	Canadian black snakeroot	3	4	3	B-FORB	May-Jul | May*		Unranked	Unranked	
Sassafras albidum	sassafras	2	2	3	TREE	Apr-May	Aug-Sep	Unranked	S4	

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Schizachyrium scoparium as var. *scoparium* (W) *Andropogon scoparius* (S)	little bluestem	5	5	3	P-GRASS	Aug-Oct	Sep-Nov	Unranked	S4	
Schoenoplectus tabernaemontani *Scirpus validus* var. *creber* (S), *Scirpus tabernaemontani* (L)	great bulrush	5	4	-5	P-SEDGE	May-Sep		Unranked	S4	
Scirpus atrovirens	dark green rush	3	4	-5	P-SEDGE	May-Sep | Jun*	Jun-Oct	Unranked	S5	
Scirpus pendulus *S. lineatus* (S)	red bulrush	5	3	-5	P-SEDGE	May-Aug | Jun*	Jun-Oct	Unranked	S5	
Scleria triglomerata	tall nut rush	6	9	0	P-SEDGE	May-Sep	Oct	S5	S3	
Scutellaria parvula var. *missouriensis* *S. parvula* var. *leonardii* (L,S) *S. leonardii* (W)	Leonard's skullcap	4	6	3	P-FORB	May-Jul		Unranked	Unranked	
Scutellaria parvula var. *parvula*	small skullcap	4	5	3	P-FORB	May-Jul	May	Unranked	Unranked	
Selaginella rupestris *Bryodesma rupestre* (W)	sand spikemoss	8		5	FERN	Jul-Oct		Unranked	S3	sterile acid sites
Senna marilandica *Cassia marilandica* (S)	Maryland senna	4	4	0	P-FORB	Jul-Aug | Jul-Aug*	Sep-Nov	Unranked	Unranked	
Setaria parviflora *S. geniculata* (S)	perennial foxtail	4		3	P-GRASS	Jul-Oct		Unranked	S3	
Silene regia	royal catchfly	9	9	5	P-FORB	May-Oct | Jul-Aug*	Jul-Nov	S3	S1, Endangered	
Silene stellata	starry campion	5	6	5	P-FORB	Jun-Sep	Jul-Oct	Unranked	S3	
Silphium integrifolium var. *integrifolium*	rosinweed	4	5	5	P-FORB	Jul-Sep | Late Jun-Aug*	Sep-Oct	Unranked	Unranked	
Silphium laciniatum	compass plant	6	5	5	P-FORB	Jul-Sep | Late Jul-Aug*		Unranked	Unranked	
Silphium perfoliatum	cup plant	3	4	-3	P-FORB	Jul-Sep | Jul-Sep*	Sep-Oct	Unranked	Unranked	

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Silphium terebinthinaceum	prairie dock	5	4	0	P-FORB	Jul-Oct | Aug*	Sep-Oct	Unranked	Unranked	
Sisyrinchium albidum	common blue-eyed grass	7	4	3	P-FORB	May-Jun		Unranked	S5	
Sisyrinchium angustifolium *S. bermudiana* (S)	pointed blue-eyed grass	5	5	0	P-FORB	May-Jul | May*	Jun-Nov	Unranked	S5	
Sisyrinchium campestre	prairie blue-eyed grass	5	6	5	P-FORB	Apr-Jun	May-Jul	Unranked	S2	
Sium suave	water parsnip	6	5	-5	P-FORB	Jul-Sep| Aug-Sep*	Sep-Nov	Unranked	Unranked	
Solidago altissima var. *altissima*	tall goldenrod	1	1	3	P-FORB	Aug-Nov		Unranked	Unranked	Native weed
Solidago altissima var. *gilvocanescens* including *S. canadensis* var. *gilvocanescens* (S)	tall goldenrod	3	1	3	P-FORB	Aug-Nov		Unranked	Unranked	
Solidago gigantea	late goldenrod	3	3	-3	P-FORB	Jul-Oct	Oct-Nov	Unranked	Unranked	
Solidago juncea	early goldenrod	4	4	5	P-FORB	Jun-Oct	Sep-Oct	Unranked	Unranked	
Solidago missouriensis subsp. *fasciculata* as var. *fasciculata* (W)	Missouri goldenrod	6	4	5	P-FORB	Jul-Oct	Aug-Oct	Unranked	Unranked	
Solidago nemoralis var. *longipetiolata* as subsp. *decemiflora* (Y,W)	old-field goldenrod	2	4	5	P-FORB	Jul-Nov		Unranked	Unranked	
Solidago nemoralis var. *nemoralis* as subsp. *nemoralis* (Y,W)	old-field goldenrod	2	4	5	P-FORB	Jul-Nov	Oct-Nov	Unranked	Unranked	
Solidago petiolaris	downy goldenrod	8	8	5	P-FORB	Late Aug-Nov	May-Nov	Unranked	Unranked	
Solidago radula	rough goldenrod	6	7	5	P-FORB	May-Oct	Oct	Unranked	Unranked	
Solidago rugosa including subsp. *aspera* (Y)	rough-leaved goldenrod	6	8	0	P-FORB	Aug-Nov	Oct-Nov	Unranked	Unranked	
Solidago speciosa var. *rigidiuscula* *S. rigidiuscula* (W) included in *S. speciosa* (L)	showy goldenrod	7	7	5	P-FORB	Aug-Nov | Oct*	Oct-Nov	Unranked	Unranked	

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Sorghastrum nutans	yellow prairie grass	4	4	3	P-GRASS	Aug-Sep | Aug-Sep*	Sep-Jan	Unranked	S5	
Spartina pectinata	prairie cord grass	5	4	-3	P-GRASS	Jun-Sep	Sep-Nov	Unranked	S4	
Sphenopholis obtusata var. *major* *S. intermedia* (L,M,S,W)	slender wedge grass	6	5	0	P-GRASS	May-Jul		Unranked	S3	
Sphenopholis obtusata var. *obtusata*	prairie wedge grass	5	5	0	P-GRASS	Apr-Jul		Unranked	S3	
Spiranthes cernua	nodding ladies' tresses	5	4	-3	P-FORB	Aug-Nov		Unranked	S3	
Spiranthes lacera *S. gracilis* (M,S)	slender ladies' tresses	6		0	P-FORB	Aug-Oct		S3	S2	
Spiranthes magnicamporum *S. cernua* var. *ochroleuca* (S)	dune ladies' tresses	7	6	3	P-FORB	Sep-Nov	Oct-Nov	Unranked	S3	
Spiranthes tuberosa	little ladies' tresses	6		5	P-FORB	Aug-Oct		Unranked	S3	
Spiranthes vernalis	spring ladies' tresses	8	7	0	P-FORB	Jun-Sep		Unranked	S1	
Sporobolus clandestinus	rough rush grass	5	6	5	P-GRASS	Aug-Oct		Unranked	S3	
Sporobolus compositus var. *compositus* *S. asper* (S)	rough dropseed	3	3	5	P-GRASS	Aug-Oct	Oct-Nov	Unranked	Unranked	
Sporobolus cryptandrus	sand dropseed	4	4	5	P-GRASS	Aug-Oct		Unranked	S3	
Sporobolus heterolepis	prairie dropseed	6	9	3	P-GRASS	Aug-Oct	Sep-Nov	Unranked	S2	
Sporobolus vaginiflorus	sheathed rush grass	0	0	5	A-GRASS	Aug-Nov		Unranked	S3	
Stachys pilosa *S. palustris* (S)	woundwort	6	5	-3	P-FORB	Jun-Sep		Unranked	Unranked	
Stachys tenuifolia	rough hedge nettle	4	5	-3	P-FORB	Jun-Sep		Unranked	Unranked	
Stenanthium gramineum as var. *gramineum* (W)	featherbells	8	#	0	P-FORB	Jun-Sep		Unranked	S1, Threatened	

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Stipa spartea *Heterostipa spartea* (M) *Hesperostipa spartea* (W)	porcupine grass	8	6	5	P-GRASS	May-Sep		Unranked	S3	
Strophostyles helvola var. *helvola*	trailing fuzzy bean	2	3	0	A-FORB	Jun-Oct | Aug*	Jul-Oct	Unranked	Unranked	
Strophostyles helvola var. *missouriensis*	trailing fuzzy bean	4	3	0	A-FORB	Jun-Oct | Aug*		Unranked	Unranked	
Strophostyles leiosperma	small wild bean	2	3	5	A-FORB	Jun-Oct | Late Aug-Oct*	Sep	Unranked	Unranked	
Strophostyles umbellata	pink wild bean	3	5	3	P-FORB	Jun-Oct; Aug-Oct | Aug*		Unranked	Unranked	
Stylosanthes biflora	pencil flower	5	5	5	P-FORB	Jun-Sep; Jul-Oct		Unranked	Unranked	
Symphyotrichum anomalum *Aster anomalus* (S)	blue aster	6	8	5	P-FORB	Jul-Nov	Sep-Nov	Unranked	Unranked	
Symphyotrichum drummondii *Aster drummondii* (S)	Drummond's aster	4	3	5	P-FORB	Aug-Nov		Unranked	Unranked	
Symphyotrichum ericoides including var. *prostratum* (Y) as var. *ericoides* (W) *Aster ericoides* (S)	heath aster	5	4	5	P-FORB	Jul-Oct	Oct-Nov	Unranked	Unranked	
Symphyotrichum laeve *Aster laevis* (S)	smooth blue aster	7	8	5	P-FORB	Aug-Oct	Oct-Dec	Unranked	Unranked	
Symphyotrichum lanceolatum var. *lanceolatum* including var. *latifolium* (Y) *Aster simplex* (S)	panicled aster	3	3	-3	P-FORB	Aug-Oct | Oct*	Oct	Unranked	Unranked	
Symphyotrichum lateriflorum *Aster lateriflorus* (S)	side-flowering aster	3	2	-3	P-FORB	Aug-Nov | Late Sep-Oct*	Nov	Unranked	Unranked	
Symphyotrichum novae-angliae *Aster novae-angliae* (S)	New England aster	4	4	-3	P-FORB	Jul-Oct | Jul-Oct*	Oct-Nov	Unranked	Unranked	

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Symphyotrichum oblongifolium *Aster oblongifolius* (S)	aromatic aster	6	7	5	P-FORB	Jul-Nov | Oct-Nov*	Nov-Dec	Unranked	Unranked	sandstone or limestone sites
Symphyotrichum oolentangiense as var. *oolentangiense* (W) including var. *poaceum* (Y) *Aster azureus* (S)	azure aster	7	7	5	P-FORB	Aug-Nov	Oct-Nov	Unranked	Unranked	
Symphyotrichum parviceps *Aster parviceps* (S)	small-headed aster	4	3	5	P-FORB	Aug-Nov		S3	S3	
Symphyotrichum patens including vars. *gracile* & *patentissimum* (Y) *Aster patens* (S)	spreading aster	5	6	5	P-FORB	Aug-Oct	Oct-Nov	SU	Unranked	acid soil
Symphyotrichum pilosum var. *pilosum* *Aster pilosus* (S)	hairy aster	0	0	0	P-FORB	Aug-Nov | Late Sep-Oct*		Unranked	Unranked	native weed
Symphyotrichum pilosum var. *pringlei* *Aster pilosus* var. *demotus* (S)	hairy aster	2	0	0	P-FORB	Aug-Nov | Late Sep-Oct*		Unranked	Unranked	
Symphyotrichum praealtum *Aster praealtus* (S)	willow aster	6	4	-3	P-FORB	Aug-Oct | Sep-Oct*	Oct-Nov	Unranked	Unranked	
Symphyotrichum racemosum var. *subdumosum* *Aster vimineus* (S) *Aster fragilis* (L)	small white aster	5	5	-3	P-FORB	Aug-Oct		S2	Unranked	
Symphyotrichum sericeum *Aster sericeus* (S)	silky aster	9	9	5	P-FORB	Aug-Oct	Oct-Nov	Unranked	Unranked	
Symphyotrichum turbinellum *Aster turbinellus* (S)	prairie aster	6	7	5	P-FORB	Aug-Nov	Oct-Nov	Unranked	Unranked	
Taenidia integerrima	yellow pimpernel	6	7	5	SHRUB	May-Jul		Unranked	Unranked	
Tephrosia virginiana	goat's rue	5	7	5	P-FORB	May-Jul; Jul-Oct	Aug-Nov	Unranked	Unranked	acidic sites

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Teucrium canadense var. *canadense* *T. canadense* (L)	germander	2	3	-3	P-FORB	Jun-Sep | Late Jun-Aug*	Sep-Oct	Unranked	Unranked	
Thalictrum dasycarpum	purple meadow rue	4	5	-3	P-FORB	May-Jul | Jun*	Jul-Oct	Unranked	S3	
Thalictrum revolutum *T. amphibolum* (W)	waxy meadow rue	5	5	0	P-FORB	May-Aug | Jun*	Jul-Dec	Unranked	S3	
Thaspium trifoliatum var. *flavum* *T. trifoliatum* var. *aureum* (L,W)	yellow meadow parsnip	6	6	5	P-FORB	Apr-Jun; Jul-Aug	Sep	S3	Unranked	
Tradescantia bracteata	long-bracted spiderwort	7	7	3	P-FORB	May-Jul	Jul-Oct	Unranked	S1, Endangered	
Tradescantia ohiensis	common spiderwort	3	3	3	P-FORB	May-Jul | May-Aug*	Jun-Oct	Unranked	S5	
Tradescantia virginiana	Virginia spiderwort	6	7	3	P-FORB	Apr-Jun | May-Jun*	Jun-Oct	Unranked	S4	
Trichostema brachiatum *Isanthus brachiatus* (S)	false pennyroyal	4	7	5	A-FORB	Jul-Oct		Unranked	Unranked	
Tridens flavus var. *flavus*	false redtop	1	1	3	P-GRASS	Jul-Sep | May*		Unranked	Unranked	native weed
Trifolium reflexum	buffalo clover	8	9	5	A-FORB	May-Aug		S3	S1, Threatened	
Triodanis biflora *Specularia biflora* (S)	small Venus' looking glass	3	4	5	A-FORB	May-Jun		Unranked	Unranked	
Triodanis perfoliata *Specularia perfoliata* (S)	perfoliate Venus' looking glass	2	2	3	A-FORB	May-Jun | Jun*		Unranked	Unranked	
Tripsacum dactyloides as var. *dactyloides* (W)	gama grass	5	4	0	P-GRASS	May-Sep | Jun*	Jun-Nov	Unranked	S3	
Verbena hastata	blue vervain	4	3	-3	P-FORB	Jun-Oct | Late Jun-Sep*	Sep-Nov	Unranked	Unranked	

Scientific Name	Common Name	MO	IL	Wet	Physiog	Flowering Time Frame	Seed Collection Time Frame	Missouri State-Listing	Illinois State-Listing	Comments
Verbena simplex	narrow-leaved vervain	3	4	5	P-FORB	May-Sep	Sep-Oct	Unranked	Unranked	calcareous soil
Verbena stricta	hoary vervain	2	2	5	P-FORB	Jun-Oct | Jun*	Oct-Nov	Unranked	Unranked	native weed
Verbena urticifolia	white vervain	2	3	0	P-FORB	May-Oct | Late Jun-Sep*	Aug-Oct	Unranked	Unranked	
Verbesina helianthoides	yellow crownbeard	5	6	5	P-FORB	May-Oct	Jul-Oct	Unranked	Unranked	
Vernonia arkansana *V. crinita* (S)	great ironweed	7		0	P-FORB	Jul-Oct	Aug-Nov	Unranked	Unranked	
Vernonia baldwinii including subsp. *interior* (Y)	western ironweed	2	5	5	P-FORB	May-Sep | Jul-Oct*	Aug-Oct	Unranked	Unranked	
Vernonia fasciculata	common ironweed	7	5	-3	P-FORB	Jul-Sep | Jul*	Oct-Nov	Unranked	Unranked	
Vernonia missurica	Missouri ironweed	5	5	0	P-FORB	Jul-Sep | Jul-Oct*	Sep-Nov	Unranked	Unranked	
Veronicastrum virginicum	Culver's root	7	6	0	P-FORB	Jun-Sep | Late Jun-Oct*	Jul-Oct	Unranked	Unranked	
Viola pedata as var. *pedata* (W)	bird's foot violet	5	7	5	P-FORB	Apr-Jun; Sep-Dec	May	Unranked	Unranked	
Viola pedatifida	prairie violet	10	9	3	P-FORB	Apr-May		Unranked	Unranked	
Viola sagittata	arrow-leaved violet	6	6	0	P-FORB	Apr-Jun		Unranked	Unranked	
Viola sororia *as* var. *sororia* (W)	hairy wood violet	2	3	0	P-FORB	Mar-Jun; Oct-Dec | Apr*	May	Unranked	Unranked	
Vitis aestivalis as var. *aestivalis* (W)	summer grape	5	4	3	W-VINE	May-Jul		Unranked	Unranked	
Vitis riparia	riverbank grape	4	2	-3	W-VINE	Apr-Jun		Unranked	Unranked	

Scientific Name	Common Name	MO	IL	Wet	Physiog	Flowering Time Frame	Seed Collection Time Frame	Missouri State-Listing	Illinois State-Listing	Comments
Vulpia octoflora var. *glauca* *Festuca octoflora* var. *tenella* (W)	six-weeks fescue	2	2	3	A-GRASS	Apr-Jun		Unranked	S3	
Vulpia octoflora var. *octoflora* *Festuca octoflora var. octoflora* (W)	six-weeks fescue	3	2	3	A-GRASS	Apr-Jun		Unranked	Unranked	
Zizia aptera	heart-leaved meadow parsnip	7		3	P-FORB	Apr-Jun | Apr*	Jul-Oct	Unranked	Unranked	
Zizia aurea	golden Alexanders	5	6	0	P-FORB	Apr-Jun | Late Apr-Jun*	Jul-Oct	Unranked	Unranked	

Appendix A: List of all plant names used by local authors that differ from the nomenclature used in this report. Names are arranged alphabetically by the scientific name used in local references. For each name, a cross reference is provided to the name used in this report, although this is sometimes imperfect due to changes in taxonomic concepts. Abbreviations in parentheses refer to these local references: L = Ladd (1997), M = Mohlenbrock (2002), S = Steyermark (1963), W = Weakley (2020), and Y = Yatskievych (1999, 2006, 2013).

Name used (Reference)	**Name used in this list**
Abdra brachycarpa (W)	*Draba brachycarpa*
Allium canadense var. canadense (Y)	*Allium canadense*
Ambrosia coronopifolia (L,S)	*Ambrosia psilostachya*
Andropogon elliottii var. *elliottii* (S)	*Andropogon gyrans*
Andropogon gerardii var. *chrysocomus* (Y)	*Andropogon gerardii*
Andropogon scoparius (S)	*Schizachyrium scoparium*
Andropogon virginicus var. *virginicus* (W)	*Andropogon virginicus*
Anemonastrum canadensis (W)	*Anemone canadensis*
Anemone virginiana var. *alba* (W)	*Anemone virginiana*
Antennaria parlinii subsp. *fallax* (Y)	*Antennaria parlinii*
Antennaria plantaginifolia (S)	*Antennaria parlinii*
Aphyllon uniflorum (W)	*Orobanche uniflora*
Apocynum cannabinum in part (Y)	*Apocynum sibiricum*
Arenaria patula var. *patula* (S)	*Minuartia patula*
Aristida curtissii (W)	*Aristida dichotoma* var. *curtissii*
Asclepias incarnata var. *incarnata* (W)	*Asclepias incarnata*
Asclepias tuberosa var. *cordata* (W)	*Asclepias tuberosa* subsp. *interior*
Aster anomalus (S)	*Symphyotrichum anomalum*
Aster azureus (S)	*Symphyotrichum oolentangiense*
Aster drummondii (S)	*Symphyotrichum drummondii*
Aster ericoides (S)	*Symphyotrichum ericoides*
Aster fragilis (L)	*Symphyotrichum racemosum* var. *subdumosum*
Aster laevis (S)	*Symphyotrichum laeve*
Aster lateriflorus (S)	*Symphyotrichum lateriflorum*
Aster linariifolius (S)	*Ionactis linariifolius*
Aster novae-angliae (S)	*Symphyotrichum novae-angliae*
Aster oblongifolius (S)	*Symphyotrichum oblongifolium*
Aster parviceps (S)	*Symphyotrichum parviceps*
Aster patens (S)	*Symphyotrichum patens*
Aster pilosus (S)	*Symphyotrichum pilosum* var. *pilosum*
Aster pilosus var. *demotus* (S)	*Symphyotrichum pilosum* var. *pringlei*
Aster praealtus (S)	*Symphyotrichum praealtum*
Aster sericeus (S)	*Symphyotrichum sericeum*
Aster simplex (S)	*Symphyotrichum lanceolatum* var. *lanceolatum*
Aster turbinellus (S)	*Symphyotrichum turbinellum*
Aster vimineus (S)	*Symphyotrichum racemosum* var. *subdumosum*

Name used (Reference)	**Name used in this list**
Astragalus canadensis var. *canadensis* (W)	*Astragalus canadensis*
Astragalus distortus var. *distortus* (W)	*Astragalus distortus*
Astragalus mexicanus var. *trichocalyx* (S)	*Astragalus crassicarpus* var. *trichocalyx*
Baptisia leucantha (S)	*Baptisia alba* var. *macrophylla*
Baptisia leucophaea (S)	*Baptisia bracteata* var. *leucophaea*
Boltonia asteroides var. *decurrens* (S)	*Boltonia decurrens*
Boltonia asteroides var. *latisquama* (S,Y)	*Boltonia asteroides*
Boltonia asteroides var. *recognita* (S,Y)	*Boltonia asteroides*
Bouteloua curtipendula var. *curtipendula* (W)	*Bouteloua curtipendula*
Brickelia eupatorioides including var. *corymbulosa* (Y)	*Brickelia eupatorioides* var. *eupatorioides*
Bryodesma rupestre (W)	*Selaginella rupestris*
Cacalia atriplicifolium (S)	*Arnoglossum atriplicifolium*
Cacalia tuberosa (S)	*Arnoglossum plantagineum*
Calopogon pulchellus in part (S)	*Calopogon oklahomensis*
Calopogon tuberosus in part (L)	*Calopogon oklahomensis*
Calystegia sepium var. *americanum* (M)	*Calystegia sepium*
Carex brachyglossa (M)	*Carex annectens* var. *xanthocarpa*
Carex bicknellii in part (S)	*Carex opaca*
Carex bicknellii var. *bicknellii* (Y)	*Carex bicknellii*
Carex cephalophora var. *mesochorea* (S)	*Carex mesochorea*
Carex complanata var. *hirsuta* (S)	*Carex hirsutella*
Carex lanuginosa (S)	*Carex pellita*
Carex muhlenbergii var. *australis* (S)	*Carex austrina*
Carex muhlenbergii var. *austrina* (M)	*Carex austrina*
Carex muhlenbergii var. *enervis* (S)	*Carex muehlenbergii* var. *enervis*
Carex opaca var. *bicknellii* (Y)	*Carex opaca*
Carex projecta (S)	included in *Carex tribuloides* var. *tribuloides*
Cassia fasciculata (S)	*Chamaecrista fasciculata*
Cassia marilandica (S)	*Senna marilandica*
Cassia nictitans (S)	*Chamaecrista nictitans*
Centunculus minimus (S)	*Anagallis minima*
Chamaecrista fasciculata var. *fasciculata* (W)	*Chamaecrista fasciculata*
Chamaecrista nictitans var. *nictitans* (W)	*Chamaecrista nictitans*
Cicuta maculata var. *bolanderi* (Y)	*Cicuta maculata*
Cicuta maculata var. *maculata* (W)	*Cicuta maculata*
Coleataenia anceps subsp. *anceps* (W)	*Panicum anceps*
Coleataenia rigidula var. *rigidula* (W)	*Panicum rigidulum*
Comandra richardsiana (S)	*Comandra umbellata*
Comandra umbellata subsp. *umbellata* (Y)	*Comandra umbellata*
Convolvulus sepium var. *sepium* (S)	*Calystegia sepium*
Convolvulus spithamaeus in part (S)	*Calystegia spithamaea*
Cornus obliqua (M,S)	*Cornus amomum* subsp. *obliqua*
Cornus racemosa (S)	*Cornus foemina* subsp. *racemosa*
Crochanthemum bicknelli (W)	*Helianthemum bicknelli*
Cuphea petiolata (S)	*Cuphea viscosissima*
Cyperus filiculmis (S)	*Cyperus lupulinus* subsp. *lupulinus*

Name used (Reference)	**Name used in this list**
Cyperus ovularis (S)	*Cyperus echinatus*
Cyperus virens (S)	*Cyperus pseudovegetus*
Desmodium paniculatum in part (L)	*Desmodium glabellum*
Desmodium paniculatum var. *dillenii* in part (S)	*Desmodium glabellum*
Desmodium rigidum (S)	*Desmodium obtusum*
Dichanthelium acuminatum var. *acuminatum* in part (W)	*Dichanthelium lanuginosum*
Dichanthelium acuminatum var. *implicatum* (M)	*Dichanthelium lanuginosum*
Dichanthelium acuminatum var. *lindheimeri* (W)	*Dichanthelium lindheimeri*
Dichanthelium linearifolium in part (W)	*Dichanthelium perlongum*
Dichanthelium villosissimum var. *villosissimum* (W)	*Dichanthelium villosissimum*
Digitaria filiformis var. *villosa* (Y)	included in *Digitaria filiformis*
Dodecatheon meadia (S)	*Primula meadia*
Eleocharis calva (S)	*Eleocharis erythropoda*
Eleocharis macrostachya (M,S)	*Eleocharis palustris*
Eleocharis smallii (S)	*Eleocharis palustris*
Eleocharis tenuis var. verrucosa (S)	*Eleocharis verrucosa*
Elymus canadensis var. *canadensis* (W)	*Elymus canadensis*
Elymus virginicus var. *glabriflorus* in part (S,Y,W)	*Elymus glabriflorus*
Endotropis lanceolata (W)	*Rhamnus lanceolata*
Erechtites hieracifolia (S)	*Erechtites hieracifolius*
Erigeron philadelphicus var. *philadelphicus* (W)	*Erigeron philadelphicus*
Eryngium yuccifolium var. *yuccifolium* (W)	*Eryngium yuccifolium*
Erythronium albidum var. *mesochoreum* (S)	*Erythronium mesochoreum*
Festuca octoflora var. *octoflora* (W)	*Vulpia octoflora* var. *octoflora*
Festuca octoflora var. *tenella* (W)	*Vulpia octoflora* var. *glauca*
Fimbristylis caroliniana (S)	*Fimbristylis puberula*
Galium obtusum var. *obtusum* (W)	*Galium obtusum*
Gaura biennis (S)	*Gaura longiflora*
Gaura longifolia (L,M)	included in *Gaura longiflora*
Gentiana andrewsii (S)	*Gentiana andrewsii* var. *andrewsii*
Gentiana clausa (S)	*Gentiana andrewsii* var. *dakotica*
Gentiana flavida (S)	*Gentiana alba*
Gentiana puberula (S)	*Gentiana puberulenta*
Gerardia aspera (S)	*Agalinis aspera*
Gerardia auriculata (S)	*Agalinis auriculata*
Gerardia purpurea (S)	*Agalinis purpurea*
Gerardia skinneriana (S)	*Agalinis skinneriana*
Gerardia tenuifolia (S)	*Agalinis tenuifolia*
Glyceria striata var. *striata* (W)	*Glyceria striata*
Gnaphalium obtusifolium (S)	*Pseudognaphalium obtusifolium*
Gnaphalium purpureum (S)	*Gamochaeta purpurea*
Habenaria flava var. *herbiola* (S)	*Platanthera flava* var. *herbiola*
Habenaria lacera (S)	*Platanthera lacera*
Habenaria leucophaea (S)	*Platanthera leucophaea*
Helianthus laetiflorus var. *rigidus* (S)	*Helianthus pauciflorus* subsp. *pauciflorus*
Helianthus occidentalis subsp. *occidentalis* (W)	*Helianthus occidentalis*

Name used (Reference)	**Name used in this list**
Hesperostipa spartea (W)	*Stipa spartea*
Heterostipa spartea (M)	*Stipa spartea*
Hexasepalum teres (W)	*Diodia teres*
Houstonia minima (S)	*Houstonia pusilla*
Houstonia nigricans var. *nigricans* (W)	*Houstonia nigricans*
Houstonia tenuifolia (W)	*Houstonia longifolia* var. *tenuifolia*
Hypericum mutilum var. *mutilum* (W)	*Hypericum mutilum*
Ionactis linariifolia (W)	*Ionactis linariifolius*
Iris shrevei (M,W)	*Iris virginica* var. *shrevei*
Isanthus brachiatus (S)	*Trichostema brachiatum*
Ivy ciliata (S)	*Iva annua*
Juncus tenuis f. *anthelatus* (S)	*Juncus anthelatus*
Koeleria cristata (S)	*Koeleria macrantha*
Krigia biflora subsp. *biflora* (W)	*Krigia biflora*
Kuhnia eupatorioides including var. *corybulosa* (S)	*Brickellia eupatorioides* var. *eupatorioides*
Lechea villosa (S)	*Lechea mucronata*
Leptoloma cognatum (S)	*Digitaria cognata*
Lespedeza intermedia (S)	*Lespedeza violacea*
Liatris pycnostachya var. *pycnostachya* (W)	*Liatris pycnostachya*
Liatris squarrosa var. *glabrata* (Y)	included in *Liatris squarrosa* var. *squarrosa*
Lindernia dubia (S,Y)	*Lindernia dubia* var. *dubia*
Lithospermum croceum (M)	*Lithospermum caroliniense*
Lithospermum molle (W)	*Onosmodium molle* subsp. *subsetosum*
Lithospermum occidentale (W)	*Onosmodium molle* subsp. *occidentale*
Lithospermum parviflorum (W)	*Onosmodium molle* subsp. *hispidissimum*
Linum curtissii (W)	*Linum medium var. texanum*
Lobelia spicata var. *leptostachys* (Y)	included in *Lobelia spicata*
Luzula bulbosa in part (S,W)	*Luzula campestris* var. *bulbosa*
Lythrum alatum var. *lanceolatum* (Y)	included in *Lythrum alatum*
Malvastrum hispidum (W)	*Malvastrum angustum*
Mimosa nuttallii (W)	*Mimosa quadrivalvis* var. *nuttallii*
Monarda fistulosa var. *mollis* (W)	*Monarda fistulosa*
Mononeuria patula (W)	*Minuartia patula*
Muhlenbergia glabriflora (S)	*Muhlenbergia glabrifloris*
Myosotis virginica var. *virginica* (S)	*Myosotis verna*
Nabalus asper (W)	*Prenanthes aspera*
Oenothera filiformis (Y,W)	*Gaura longiflora*
Oenothera macrocarpa var. *macrocarpa* (W)	*Oenothera macrocarpa*
Oenothera missouriensis (S)	*Oenothera macrocarpa*
Onosmodium subsetosum (S)	*Onosmodium molle* subsp. *subsetosum*
Opuntia compressa (S)	*Opuntia humifusa*
Oxalis stricta (M)	*Oxalis dillenii*
Panicum acuminatum var. *acuminatum* in part (Y)	*Dichanthelium lanuginosum*
Panicum acuminatum var. *acuminatum* in part (Y)	*Dichanthelium praecocius*
Panicum acuminatum var. *acuminatum* (Y)	*Dichanthelium villosissimum*
Panicum acuminatum var. *lindheimeri* (Y)	*Dichanthelium lindheimeri*

Name used (Reference)	**Name used in this list**
Panicum agrostoides (S)	*Panicum rigidulum*
Panicum clandestinum (S,Y)	*Dichanthelium clandestinum*
Panicum depauperatum (S,Y)	*Dichanthelium depauperatum*
Panicum lanuginosum var. *fasciculatum* (S)	included in *Dichanthelium lanuginosum*
Panicum lanuginosum var. *lindheimeri* (S)	*Dichanthelium lindheimeri*
Panicum leibergii (S,Y)	*Dichanthelium leibergii*
Panicum linearifolium in part (Y)	*Dichanthelium linearifolium* var. *linearifolium* and/or *D. perlongum*
Panicum linearifolium var. *linearifolium* (S)	*Dichanthelium linearifolium* var. *linearifolium*
Panicum oligosanthes var. *helleri* (S)	*Dichanthelium scribnerianum*
Panicum oligosanthes var. *scribnerianum* (S,Y)	*Dichanthelium oligosanthes* var. *scribnerianum*
Panicum perlongum (S)	*Dichanthelium perlongum*
Panicum praecocius (S)	*Dichanthelium praecocius*
Panicum sphaerocarpon (S,Y)	*Dichanthelium sphaerocarpon*
Panicum villosissimum var. *villosissimum* (S)	*Dichanthelium villosissimum*
Panicum virgatum var. *virgatum*	*Panicum virgatum*
Parthenium integrifolium var. *integrifolium* (Y,W)	*Parthenium integrifolium*
Paspalum ciliatifolium var. *ciliatifolium* (S)	*Paspalum setaceum* var. *ciliatifolium*
Paspalum ciliatifolium var. *muhlenbergii* (S)	*Paspalum setaceum* var. *muhlenbergii*
Petalostemon candidum (S)	*Dalea candida*
Petalostemon purpureum (S)	*Dalea purpurea*
Phyla lanceolata (W)	*Lippia lanceolata*
Physostegia formisior (S)	*Physostegia virginiana* subsp. *praemorsa*
Physostegia virginiana var. *speciosa* (S)	*Physostegia virginiana* subsp. *praemorsa*
Plantago pusilla including var. *major* (S)	*Plantago elongata*
Polygala verticalla var. *ambigua* (Y)	*Polygala verticalla*
Polygala verticalla var. *isocycla* (W)	*Polygala verticalla*
Polygonatum biflorum (S)	*Polygonatum biflorum* var. *commutatum*
Polygonatum canaliculatum (S)	*Polygonatum biflorum* var. *commutatum*
Polygonatum commutatum (M)	*Polygonatum biflorum* var. *commutatum*
Polygonum hydropiperoides including var. *opelousanum* (S)	*Persicaria hydropiperoides*
Polygonum punctatum (S)	*Persicaria punctata*
Potentilla arguta (S)	*Drymocallis arguta*
Prunella vulgaris var. *elongata* (M)	*Prunella vulgaris* var. *lanceolata*
Prunus hortulana in part (Y)	*Prunus munsoniana*
Psoralea onobrychis (S)	*Orbexilum onobrychis*
Psoralea psoralioides var. *eglandulosa* (S)	*Orbexilum pedunculatum*
Psoralea tenuiflora (S)	*Pediomelum tenuiflorum*
Ptelea trifoliata var. *trifoliata* (W)	*Ptelea trifoliata*
Quercus macrocarpa var. *macrocarpa* (W)	*Quercus macrocarpa*
Quercus marilandica var. *marilandica* (W)	*Quercus marilandica*
Quercus stellata var. *stellata* (Y)	*Quercus stellata*
Rhus copallina var. *latifolia* (S)	*Rhus copallinum* var. *latifolia*

Name used (Reference)	**Name used in this list**
Rubus enslenii in part (S)	*Rubus aboriginum*
Rubus flagellaris in part (S)	*Rubus curtipes*
Rubus orarius (S)	*Rubus alumnus*
Rubus ostryifolius in part (S)	*Rubus ablatus*
Rubus pensilvanicus (S,W)	included in *Rubus frondosus*
Rudbeckia hirta var. *pulcherrima* (Y,W)	*Rudbeckia hirta*
Rudbeckia triloba var. triloba (W)	*Rudbeckia triloba*
Salix humilis var. *tristis* (Y)	*Salix humilis*
Sanicula canadensis var. *canadensis* (W)	*Sanicula canadensis*
Schizachyrium scoparium var. *scoparium* (W)	*Schizachyrium scoparium*
Schrankia uncinata (S)	*Mimosa quadrivalvis* var. *nuttallii*
Scirpus lineatus (S)	*Scirpus pendulus*
Scirpus tabernaemontani (L)	*Schoenoplectus tabernaemontani*
Scirpus validus var. *creber* (S)	*Schoenoplectus tabernaemontani*
Scutellaria leonardii (W)	*Scutellaria parvula* var. *missouriensis*
Scutellaria parvula var. *leonardii* (L,S)	*Scutellaria parvula* var. *missouriensis*
Senecio aureus, including vars. *gracilis* & *intercursus* (S)	*Packera aurea*
Senecio pauperculus var. *balsamitae* (S)	*Packera paupercula*
Senecio plattensis (S)	*Packera plattensis*
Setaria geniculata (S)	*Setaria parviflora*
Sisyrinchium bermudiana (S)	*Sisyrinchium angustifolium*
Solidago canadensis var. *gilvocanescens* (S)	included in *Solidago altissima* var. *gilvocanescens*
Solidago graminifolia vars. *media* and *nuttallii* (S)	*Euthamia graminifolia*
Solidago gymnospermoides (S)	*Euthamia gymnospermoides*
Solidago missouriensis var. *fasciculata* (W)	*Solidago missouriensis* subsp. *fasciculata*
Solidago nemoralis subsp. decemiflora (Y,W)	*Solidago nemoralis* var. *longipetiolata*
Solidago nemoralis subsp. nemoralis (Y,W)	*Solidago nemoralis* var. *nemoralis*
Solidago rigida (S,Y)	*Oligoneuron rigidum*
Solidago rugosa including subsp. *aspera* (Y)	*Solidago rugosa*
Specularia biflora (S)	*Triodanis biflora*
Specularia perfoliata (S)	*Triodanis perfoliata*
Sphaeralcea angusta (S)	*Malvastrum angustum*
Sphenopholis intermedia (L,M,S,W)	*Sphenopholis obtusata* var. *major*
Spiranthes cernua var. *ochroleuca* (S)	*Spiranthes magnicamporum*
Spiranthes gracilis (M,S)	*Spiranthes lacera*
Sporobolus asper in part (S)	*Sporobolus compositus* var. *compositus*
Stachys palustris (S)	*Stachys pilosa*
Steironema ciliatum (W)	*Lysimachia ciliata*
Steironema hybridum (W)	*Lysimachia hybrida*
Steironema lanceolatum (W)	*Lysimachia lanceolata*
Stenanthium gramineum var. *gramineum* (W)	*Stenanthium gramineum*
Swida drummondii (W)	*Cornus drummondii*
Swida obliqua (W)	*Cornus amomum* subsp. *obliqua*
Swida racemosa (W)	*Cornus foemina* subsp. *racemosa*

Name used (Reference)	**Name used in this list**
Symphyotrichum ericoides var. *ericoides* (W)	*Symphyotrichum ericoides*
Symphyotrichum ericoides var. *prostratum* (Y)	included in *Symphyotrichum ericoides*
Symphyotrichum lanceolatum var. *latifolium* (Y)	included in *Symphyotrichum lanceolatum* var. *lanceolatum*
Symphyotrichum oolentangiense var. *oolentangiense* (W)	*Symphyotrichum oolentangiense*
Symphyotrichum oolentangiense var. *poaceum* (Y)	included in *Symphyotrichum oolentangiense*
Symphyotrichum patens var. *gracile* (Y)	included in *Symphyotrichum patens*
Symphyotrichum patens var. *patentissimum* (Y)	included in *Symphyotrichum patens*
Talinum calycinum (S)	*Phemeranthus calycinus*
Teucrium canadense (L)	*Teucrium canadense* var. *canadense*
Thalictrum amphibolum (W)	*Thalictrum revolutum*
Thaspium trifoliatum var. *aureum* (L,W)	*Thaspium trifoliatum* var. *flavum*
Tomanthera auriculata (M)	*Agalinis auriculata*
Tripsacum dactyloides var. *dactyloides* (W)	*Tripsacum dactyloides*
Vernonia baldwinii subsp. *interior* (Y)	included in *Vernonia baldwinii*
Vernonia crinita (S)	*Vernonia arkansana*
Viola pedata var. *pedata* (W)	*Viola pedata*
Viola sororia var. *sororia* (W)	*Viola sororia*
Vitis aestivalis var. *aestivalis* (W)	*Vitis aestivalis*